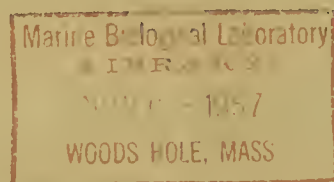


GUIDE TO LITERATURE ON SYSTEMATIC BIOLOGY OF PACIFIC SALMON



SPECIAL SCIENTIFIC REPORT-FISHERIES No. 209

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

Department of the Interior, Fred A. Seaton, Secretary
U. S. Fish and Wildlife Service

GUIDE TO LITERATURE ON SYSTEMATIC BIOLOGY
OF PACIFIC SALMON

by

Norman J. Wilimovsky and Warren O. Freihofer

Natural History Museum
Stanford University

Special Scientific Report--Fisheries No. 209

Washington, D.C.

April 1957

EXPLANATORY NOTE

The series embodies results of investigations, usually of restricted scope, intended to aid or direct management or utilization practices and as guides for administrative or legislative action. It is issued in limited quantities for official use of Federal, State or cooperating agencies and in processed form for economy and to avoid delay in publication.

This report prepared under the auspices of the

Pacific Salmon Investigations
U. S. Fish and Wildlife Service
Terminal Report
Contract 14-19-008-2413

TABLE OF CONTENTS

Introduction	1
Scope of the Bibliography	
Literature Examined	
Acknowledgements	10
Limitations of Cross-Index	11
Subject Index	12
Nomenclature	
Range and Distribution	
Description - Counts and Measurements	
Figures and Illustrations	
Life Colors	
Relationships	
Racial Analysis	
Anatomy and Physiology	
Biochemistry	
Flesh Color	
Behavior: Leaping Habits	
Sex Ratios	
Hybridization	
Time of Spawning Migration	
Time of Return from Ocean to Stream Mouth	
Time of Upstream Migration	
Size at Time of Return	
Age at Time of Return	
Type of Spawning Stream	
Distance Traveled Upstream	
Nature of Spawning Site	
Spawning Period	
Sexual Dimorphism	
Spawning Behavior	
Post-spawning Behavior	
Date Eggs Hatch	
Behavior of Fry and Fingerlings	
Time Young Spend in Freshwater	
Date of Seaward Migration	
Size at Time of Seaward Migration	
Movements in the Ocean	
Marking or Tagging and Recapture Data	
Homing Instinct	
Growth Rates	
Food and Feeding Habits	
Parasites and Diseases	
Introductions and Acclimatization	
Egg Counts	
Relative Abundance	

Pink Salmon Index	43
Description - Counts and Measurements	
Figures and Illustrations	
Life Colors	
Relationships	
Racial Analysis	
Anatomy and Physiology	
Biochemistry	
Sex Ratios	
Time of Spawning Migration	
Time of Return from Ocean to Stream Mouth	
Time of Upstream Migration	
Size at Time of Return	
Age at Time of Return	
Type of Spawning Stream	
Distance Traveled Upstream	
Nature of Spawning Site	
Spawning Period	
Sexual Dimorphism	
Spawning Behavior	
Post-spawning Behavior	
Date Eggs Hatch	
Behavior of Fry and Fingerlings	
Time Young Spend in Freshwater	
Date of Seaward Migration	
Size at Time of Seaward Migration	
Movements in the Ocean	
Marking or Tagging and Recapture Data	
Homing Instinct	
Growth Rates	
Food and Feeding Habits	
Parasites and Diseases	
Introductions and Acclimatization	
Egg Counts	
Relative Abundance	

Chum Salmon Index	57
Description - Counts and Measurements	
Figures and Illustrations	
Life Colors	
Relationships	
Racial Analysis	
Anatomy and Physiology	
Biochemistry	
Sex Ratios	
Time of Spawning Migration	
Time of Return from Ocean to Stream Mouth	
Time of Upstream Migration	
Size at Time of Return	
Age at Time of Return	

Chum Salmon Index (cont.)

Type of Spawning Stream
Distance Traveled Upstream
Nature of Spawning Site
Spawning Period
Sexual Dimorphism
Spawning Behavior
Post-spawning Behavior
Date Eggs Hatch
Behavior of Fry and Fingerlings
Time Young Spend in Freshwater
Date of Seaward Migration
Size at Time of Seaward Migration
Movements in the Ocean
Marking or Tagging and Recapture Data
Homing Instinct
Growth Rates
Food and Feeding Habits
Parasites and Diseases
Introductions and Acclimatization
Egg Counts
Relative Abundance

Silver Salmon Index 71

Description - Counts and Measurements
Figures and Illustrations
Life Colors
Relationships
Racial Analysis
Anatomy and Physiology
Biochemistry
Sex Ratios
Time of Spawning Migration
 Time of Return from Ocean to Stream Mouth
 Time of Upstream Migration
Size at Time of Return
Age at Time of Return
Type of Spawning Stream
Distance Traveled Upstream
Nature of Spawning Site
Spawning Period
Sexual Dimorphism
Spawning Behavior
Post-spawning Behavior
Date Eggs Hatch
Behavior of Fry and Fingerlings
Time Young Spend in Freshwater
Date of Seaward Migration
Size at Time of Seaward Migration
Movements in the Ocean

Silver Salmon Index (cont.)

Marking or Tagging and Recapture Data
Homing Instinct
Growth Rates
Food and Feeding Habits
Parasites and Diseases
Introductions and Acclimatization
Egg Counts
Relative Abundance

King Salmon Index 86

Description - Counts and Measurements
Figures and Illustrations
Life Colors
Relationships
Racial Analysis
Anatomy and Physiology
Biochemistry
Sex Ratios
Time of Spawning Migration
 Time of Return from Ocean to Stream Mouth
 Time of Upstream Migration
Size at Time of Return
Age at Time of Return
Type of Spawning Stream
Distance Traveled Upstream
Nature of Spawning Site
Spawning Period
Sexual Dimorphism
Spawning Behavior
Post-spawning Behavior
Date Eggs Hatch
Behavior of Fry and Fingerlings
Time Young Spend in Freshwater
Date of Seaward Migration
Size at Time of Seaward Migration
Movements in the Ocean
Marking or Tagging and Recapture Data
Homing Instinct
Growth Rates
Food and Feeding Habits
Parasites and Diseases
Introductions and Acclimatization
Egg Counts
Relative Abundance

Sockeye Salmon Index (including the Kokanee) 104

Description - Counts and Measurements
Figures and Illustrations

Sockeye Salmon Index (including the Kokanee)(cont.)

Life Colors
Relationships
Racial Analysis
Anatomy and Physiology
Biochemistry
Sex Ratios
Time of Spawning Migration
 Time of Return from Ocean to Stream Mouth
 Time of Upstream Migration
Size at Time of Return
Age at Time of Return
Type of Spawning Stream
Distance Traveled Upstream
Nature of Spawning Site
Spawning Period
Sexual Dimorphism
Spawning Behavior
Post-spawning Behavior
Date Eggs Hatch
Behavior of Fry and Fingerlings
Time Young Spend in Freshwater
Date of Seaward Migration
Size at Time of Seaward Migration
Movements in the Ocean
Marking or Tagging and Recapture Data
Homing Instinct
Growth Rates
Food and Feeding Habits
Parasites and Diseases
Introductions and Acclimatization
Egg Counts
Relative Abundance

Masu Salmon Index (including related forms) 123

Description - Counts and Measurements
Figures and Illustrations
Life Colors
Relationships
Anatomy and Physiology
Time of Spawning Migration
Age at Time of Return
Spawning Period
Post-spawning Behavior
Behavior of Fry and Fingerlings
Time Young Spend in Freshwater
Date of Seaward Migration
Movements in the Ocean

Masu Salmon Index (including related forms) (cont.)
 Marking or Tagging and Recapture Data
 Growth Rates
 Parasites and Diseases

Annotated Bibliography 128

There is no easier method to destroy a sense of perfection or
to bring on criticism than to publish a bibliography.

By

Norman J. Wilimovsky and Warren G. Freihofer

INTRODUCTION

The importance and significance of salmon (Oncorhynchus spp.) in the economy of nations bordering the North Pacific Ocean is too well known to require any lengthy justification for our need to study the biology of these fishes. This widespread interest in the salmon by both the lay and scientific public has resulted in the publication of a vast literature on these species. The extent of the data available has become such that it is virtually impossible for one person to become familiar with all of it. To aid those investigators studying the systematic biology of the Pacific salmon, the following subject index and annotated bibliography was prepared.

Scope of the Bibliography

This report is intended to serve as a guide to those papers (within the range of the literature examined by us) treating the systematic biology of the Pacific salmon (Oncorhynchus spp.). The word systematics is used in its modern or broad sense and not merely in the pure taxonomic or nomenclatorial sense. As defined by G.S. Myers (Systematic Zoology, 1952, volume 1, p. 106), "Systematic biology (= 'systematics') is the study of the nature and origin of the natural populations of living organisms, both present and past."

The following list of topics included within this bibliography will indicate our intent of the term "nature" in the above definition.

Nomenclature

The annotated bibliography will indicate whether a scientific name has been employed and which of the several common names is used in a particular reference.

Range and Distribution

The references indicate whether distributional data are included in the paper. As a rule, taxonomic papers listing the species from a region where it is already known have not been included in this bibliography.

Description - Counts and Measurements

Material in this category (particularly the counts and measurements) is that which is ordinarily considered of taxonomic importance.

Figures and Illustrations

Papers containing drawings and/or photographs of sufficient detail so as to be useful in systematic analysis are so indicated.

Life Colors

As natural populations of fishes may have distinctive color patterns, an attempt was made to isolate data on life colors so as to aid in racial analysis.

Relationships

References containing data on relationships whether in the form of comparisons, keys or phylogenetic discussions are included.

Racial Analysis

All available information on the progress or methods of analysis of races and populations in Pacific salmon was included.

Anatomy and Physiology

Included within this category are references concerning the anatomy, histology, osteology (including sub-fossil finds) and the physiology of salmon.

Biochemistry

Materials on the natural biochemical characteristics of salmon were abstracted. Data on the canned product was not considered.

Flesh Color

Comparisons of flesh color in the various salmon species were indexed for their possible aid in racial analysis.

Behavioral Studies

Within the literature abstracted by us the minimal available data on the ethology of salmon was included.

Sex Ratios

In using the papers containing data on sex ratios, the original method of data collection should be considered for possible differences between the statistics and the natural population.

Hybridization

Time of Spawning Migration

As defined in the subject index, two categories are included under this heading: Time of Return from Ocean to Stream Mouth
Time of Upstream Migration

Size at Time of Return

These references include data expressed either as length or weight or both.

Age at Time of Return

Type of Spawning Stream

Some additional data of this nature may possibly be included in the sections treating the nature of spawning sites and the section on distance traveled upstream.

Distance Traveled Upstream

Nature of Spawning Site

Spawning Period

This category includes both statements regarding the dates on which spawning activity was observed or was about to occur, and those statements of the duration of the spawning period.

Sexual Dimorphism

The majority of references in this category contain only brief remarks on sexual dimorphism. Papers containing data only on weight or length differences between the sexes are not included in this section.

Spawning Behavior

Post-spawning Behavior

Papers containing data on the activity of salmon after spawning, even if the statements only indicated that the fish were observed dying, are included in this category.

Date Eggs Hatch

Included in this category are records of both the date of egg hatching and those noting the date salmon fry emerge from the gravel and are first visible on the stream bottom. Hatchery observations are not included.

Behavior of Fry and Fingerlings

Time Young Spend in Freshwater

Information on this topic includes data both from scale readings of young or adults, and from direct observation.

Date of Seaward Migration

Size at Time of Seaward Migration

Movements in the Ocean

This category contains references having any mention of salmon movements in the ocean, whether near the shore or on the high seas.

Marking or Tagging and Recapture Data

This section should provide material to aid in racial analysis, determination of migration rates and distances and for the study of homing behavior.

Homing Instinct

Growth Rates

This section includes both ocean and stream growth data. Hatchery records are not included.

Food and Feeding Habits

Parasites and Diseases

Although the material is extremely limited, on the basis of present data there is the strong possibility that the hosts (salmon) have partially different parasitic spectra. A more complete knowledge of parasites and diseases infecting salmon should offer considerable information on other life history factors of the host, as migratory paths, distributional patterns, major food, etc.

Introductions and Acclimatization

References containing records of the introduction and/or acclimatization of salmon into exotic waters are included so as to aid in the analysis and comparison of waters in which salmon may naturally occur.

Egg Counts

Relative Abundance

Examination of the annotated bibliography will indicate whether the references in this category contain data on catch records, or as counts of migrant adults.

As the above list shows, not included in this bibliography are data on hatchery propagation methods, hatchery foods, studies of salmon in relation to obstructions as dams, or to pollution, predation studies, or data on escapement.

The report consists of three main parts, a general subject index, an index to topics by species, and an annotated bibliography.

Literature Examined

The following publications were searched for materials on the Pacific salmon. Except where noted otherwise, these publications were examined from their onset to the end of 1955. Where the name of a journal or serial has been changed, only the most recent title is listed and it is to be understood that the former title(s) has been examined.

American Fisheries Society, Transactions
vol. 24 - to date examined

Alaska Fisheries Board, Annual Report
no. 1 - 5 examined

Alaska Fish Commission, Special Report
1923

Bingham Oceanographic Collection, Bulletin

Bingham Oceanographic Collection, Occasional Papers

Biological Reviews
vol. 1 - 23, 29 examined

British Columbia, Report of the Fisheries Commissioner
1902-1955, except for 1910 and 1915

California Academy of Sciences, Bulletin

California Academy of Sciences, Proceedings
first series: vol. 3-6
second series: vol. 1-6
third series: vol. 1-4
fourth series: to date

California, Report of the Commissioner of Fisheries

California Fish and Game

California Fish Bulletin

Canada, Biological Board of Canada, Bulletin
no. 1 - 103

Canada, Biological Board of Canada, Reports, Annual
1931, 1935 - 1954

Canada, Department of Marine and Fisheries, Fisheries Branch
no. 1 - 24, except 5 and 23

Canada, Department of Marine and Fisheries, Fisheries Branch, Annual Report
1926-1929

Canada, Fisheries Research Board, Journal

Canada, Fisheries Research Board, Atlantic Biological Stations, General Circular
no. 19-25

Canada, Fisheries Research Board, Pacific Coast Stations, Progress Report

Canada, Fisheries Research Board, Studies from the Stations
1951, 1952, 1954

Canada, Royal Society, Transactions
series three: 20, 29, 34, 35, 42, and 47

Canadian Field Naturalist
vol. 1-67 except for 35-37, 43-49, 60-61, and 64-65

Canadian Fish Culturist
16-17

Copeia

Ecological Monograph
to date except for 17

Ecology
vol. 17-30

FAO, Fisheries Studies

Formosa, Taihoku, Taiwan Fisheries Institute, Fish Culture Report
no. 1 and 2

Formosa, Taipei, Quarterly Journal of the Taiwan Museum

International Fisheries Commission, Reports
1-12

International North Pacific Fisheries Commission, Bulletin

International Pacific Salmon Fisheries Commission, Annual Report
1937-1942, 1945

International Pacific Salmon Fisheries Commission, Bulletin

Japan, Central Fisheries Station, Contributions

Japan, Fisheries Abstracts, 1950

Japan, Hokkaido Regional Fisheries Research Laboratory, Bulletin

Japan, Hokkaido Fish Hatchery, Scientific Reports
nos. 6-8, 10

Japan, Hokkaido University, Bulletin of the Faculty of Fisheries
vol. 4 to date

Japan, Hokkaido University, Journal of the Faculty of Fisheries
to 1948

Japan, Hokkaido University, Memoirs of the Faculty of Fisheries
vol. 2 to date

Japan, Hyogo University, Memoirs
vol. 1

Japan, Fisheries Society, Journal
no. 117-121, 216

Japan, Naikai Regional Fisheries Research Laboratory, Bulletin

Japan, Naikai Regional Fisheries Research Laboratory, Research Report
to 1950

Japan, Naikai Regional Fisheries Research Laboratory, Supplementary Report
to 1953

Japan, Seikai Regional Fisheries Research Laboratory, Report
2-3

Japan, Sapporo Natural History Society, Transactions
vol. 6-19

Japan, Shimonoseki, College of Fisheries, Contributions
to 1951

Japan, Shimonoseki, College of Fisheries, Journal

Japan, Tohoku Regional Fisheries Laboratory, Bulletin

Japan, Tokai Regional Fisheries Laboratory, Special Bulletin
1-4

Japan, Tokai Regional Fisheries Research Laboratory, Bulletin

Japan, Tokyo, Freshwater Fisheries Research Laboratory, Bulletin

Japan, Tokyo, Imperial Fisheries Experimental Station, Contributions
1-177

Japan, Tokyo, Imperial Fisheries Experimental Station, Journal
1, 77-10

Japan, Tokyo, Imperial Fisheries Institute, Journal
vol. 20 to date

Japan, University of Mie, Faculty of Fisheries, Journal,
to 1953

Japan, University of Mie, Faculty of Fisheries, Report
to 1954

Japanese Journal of Ichthyology
 Journal of Morphology
 vol. 1-10, 57
 Journal of Parasitology
 vol. 1-41, except vol. 33, 34
 Journal of Wildlife Management
 to vol. 12
 New Zealand, Marine Department, Fisheries Bulletin
 all except no. 8
 New Zealand, Marine Department, Report on Fisheries
 1928-41, 1945, 1947-1950
 North American Wildlife Conference, Transactions
 Ontario Fisheries Research Laboratory, Biological Series
 1-60
 Oregon Fish Commission, Biennial Report
 1931, 1933, 1941, 1943, 1949
 Oregon Fish Commission, Contributions
 1-21
 Oregon, State Game Commission, Bulletin
 vol. 1-8
 Oregon, State, Fish and Game Protector, Annual Report
 3-4
 Pacific Fisherman
 Pacific Fisherman Yearbook
 Pacific Fisheries Society, Transactions
 Pacific Science Congress, Proceedings
 1921, 1923, 1928-29, 1933, 1940, 1946
 Pacific Marine Fisheries Commission, Annual Report
 Pacific Marine Fisheries Commission, Bulletin
 no. 1-2
 Parasitology
 vol. 1-45
 Philadelphia Academy of Natural Sciences, Journal
 1-8
 Philadelphia Academy of Natural Sciences, Monograph
 2, 4-7
 Philadelphia Academy of Natural Sciences, Proceedings
 all except vol. 9, 14, 18, 41-52, 65, 79

Progressive Fish Culturist
Puget Sound Biological Station, Publications
Quarterly Review of Biology
vol. 6-14
Salmon and Trout Magazine
Sears Foundation, Journal of Marine Research
Stanford Ichthyological Bulletin
United Nations, Food and Agriculture Organization, Fisheries Bulletin
United States Fish and Wildlife Service, Bulletin
United States Fish and Wildlife Service, Conservation Bulletin
no. 1, 7-8, 10-21, 23-25, 27-38
United States Fish and Wildlife Service, Fisheries Service Bulletin
no. 110-307
United States Fish and Wildlife Service, Fishery Circular
no. to 28
United States Fish and Wildlife Service, Fishery Leaflet
to no. 412
United States Fish and Wildlife Service, Investigational Reports
to no. 44
United States Fish and Wildlife Service, Report of the Commissioner
United States Fish and Wildlife Service, Research Reports
United States Fish and Wildlife Service, Special Scientific Report
United States Fish and Wildlife Service, Special Scientific Report, Fisheries
United States National Museum, Bulletin
United States National Museum, Proceedings
Washington, Department of Fisheries, Bulletin
35-45
Washington, Department of Fisheries, Fisheries Research Papers
1953, 1955
Washington, Department of Fisheries, Research Bulletin
to 1954
Washington, State, Department of Fisheries, Biological Circular

Washington, State, Department of Fisheries, Report
9-11

Washington, State, Department of Fisheries, Special Report
1953

Washington, University Publications in Fisheries
vol. 1-2

Washington, Biological Society, Proceedings

Washington, Helminthological Society, Proceedings
vol. 7-22

In addition to the foregoing serials and journals, many hundreds of individual articles were examined. These are indexed and contained in the annotated bibliography, but it would serve no useful purpose to list the journals as the entire sets were not searched.

ACKNOWLEDGEMENTS

The preparation of this subject index and annotated bibliography was supported by a contract between the Pacific Salmon Investigations, U.S. Fish and Wildlife Service and Stanford University (Contract 14-19-008-2413). We wish to thank Clinton E. Atkinson, Chief of the Pacific Salmon Investigations and his aid in this field, Paul T. Macy, for their full cooperation, as well as Miss Margaret H. Storey who made the full facilities of the Natural History Museum library available for our use. This report would not have been possible within the time available, without the help of our group of bibliographic aides and typists. Our thanks go to H. H. DeJitt, A. K. Doheny, L. Lanz, H. E. Munsterman, J.C. Oben, M. E. Sands and B. Westinghouse, but particularly to Mrs. Lucille Mlodnosky, Miss Patricia Dolan and Miss Isabella Halsted who bore the brunt of this labor. Last but not least, Miss Florence Yao of the Inter-library Loan Department of Stanford University, helped track down many obscure references and journals.

LIMITATIONS OF CROSS-INDEX

The nature of the coding on the punch cards employed makes the subject index inclusive, but the species index may contain some extra entries (less than 2% of the total). It is to be emphasized that these latter entries are extra and that within the scope of the literature examined by us, no references are omitted.

SUBJECT INDEX

NOMENCLATURE

Under each species are listed the scientific name and most frequently employed common names. The annotated bibliography will indicate whether a scientific name has been employed and which of the several common names is used in a particular reference.

RANGE AND DISTRIBUTION

Under each species the natural occurrence is defined. Examination of the annotated bibliography will indicate whether a specific reference contains distributional data.

DESCRIPTION - COUNTS AND MEASUREMENTS

Data on descriptive matter and/or counts and measurements are presented under each species entry.

FIGURES AND ILLUSTRATIONS

Drawings and/or illustrations are listed under each species entry.

LIFE COLORS

Data on life colors or color pattern are presented under each species.

RELATIONSHIPS

The following references contain data on the interrelationships of salmon. Distinctions employed in keys are included in this category.

Babcock, 1931a
Berg, 1948
Boulenger, 1895
Bryant & Evermann, 1919
Burner, 1951
Chamberlain, 1907
Clemens, 1935b, 1946b
Clothier, 1950
Eigenmann, 1895
Evermann, 1897
Foerster, 1947b
Foerster & Pritchard, 1935
Gill, 1862

Girard, 1857
Hagerman, 1951
Hallock, 1952
Hoar, 1951a
Jordan & Evermann, 1896
Jordan & Gilbert, 1882
Kobayasi, 1951, 1953, 1955
Locke, 1929
Murphy & Shapovalov, 1951
Nomura, 1953
Rich, 1921b
Ricker, 1938b
Schultz, 1934
Shapovalov, 1947
Smith, 1895a, 1898b

Snyder, 1931
Taft, 1937b

Tchernavin, 1938
Walford, 1931

RACIAL ANALYSIS

Comments or data on races or populations are included under the specific accounts.

ANATOMY AND PHYSIOLOGY

Included within this category are references concerning the anatomy, histology, osteology (including sub-fossil finds) and physiology of the salmon.

Anon., 1955a
Bailey, 1937
Black, 1953
Black, 1951a, 1951b
Brett, 1952b
Brett & MacKinnon, 1952, 1954
Chapman, 1938
Cobb, 1921
Coker, 1922
Davidson & Shostrom, 1936
Foerster, 1929d
Greene, 1905, 1911a, 1911b, 1912,
1913, 1914, 1915a, 1915b, 1919,
1921a, 1921b
Greene & Greene, 1915
Hoar, 1951c, 1953
Hoar & Bell, 1950
Holmes, 1928
Honma & Murakawa, 1955
Igarshi & Zama, 1953
Jordan, 1904a
Katz, 1950, 1951
Katz & Southward, 1950
Kendall, 1922

Kobayashi, 1955
Kobayashi & Yuki, 1954a, 1954b
Kubo, 1954, 1955
Lowman, 1953
Lowman & Jensen, 1955
Nishida, 1953a, 1953b, 1954, 1955
Nomura, 1953
Okada, 1954
Palmer, et al., 1954
Pentegov, et al., 1928
Potter & Hoar, 1954 Powers, 1939
Reagan, 1917
Saito, 1940
Smith, 1916
Sumner, 1906
Tchernavin, 1938
Tuge, 1937
Weisel, 1947
Yamamoto, 1955

BIOCHEMISTRY

The following papers contain data on the biochemistry of salmon. It should be noted that a much greater literature exists in journals not abstracted by us.

Atwater, 1892
Bailey, 1952
Beveridge, 1947
Brocklesby, 1933, 1940
Brocklesby & Denstedt, 1933
Dyer, 1952

Fallera, 1926
Jampolsky & Hoar, 1954
Jarvis, et al., 1926
Ney, et al., 1950
Pugsley, 1942
Pottinger & Baldwin, 1940
Riddell, 1936b

FLESH COLOR

Remarks and/or comparisons of flesh color of salmon are contained in the following references:

Cobb, 1919	Prince, 1916b
Evermann & Goldsborough, 1907b	Rounsefell & Kelez, 1940
Marsh & Cobb, 1907, 1908	

BEHAVIOR: LEAPING HABITS

Studies on the ethology of salmon are still in their infancy. However, it seems that the following remarks on leaping constitute our entire knowledge (within the journals abstracted) on this phase of salmon behavior.

Bean, 1894	McGregor, 1922a
Chamberlain, 1907	Fritchard & Neave, 1942
Foskett, 1952b	Ward, 1909, 1910
MacKinnon & Brett, 1953	

SEX RATIOS

The following references contain data on the sex ratios of salmon. In using this material, the limitations of the original method of data collection should be borne in mind. Of the literature examined by us, only two papers contained notice of hermaphroditism in salmon (Crawford, 1927; Rutter, 1904b).

Chamberlain, 1907	Marr, 1941
Gibson, 1930, 1931	Robertson, 1948
Gilbert, 1914a, 1914b, 1915, 1916, 1920, 1922, 1923, 1924a, 1924c, 1925	Rich, 1922
Henry, 1954	Snyder, 1931
	Stone, 1928a, 1928b, 1929a, 1930b, 1931a

HYBRIDIZATION

The following references contain information on inter-specific hybridization in salmon. Terao, 1935, records a cross between the cod and the salmon!

Bonham & Seymour, 1949
Clemens, 1953
Collins, 1892
Duff, 1932a
Foerster, 1930a, 1935

Gaylord & Marsh, 1914
Gibson, 1929
Oshima, 1934
Raveret-Wattel & Barrett, 1889
Smith, 1915

TIME OF SPAWNING MIGRATION

Under this heading are grouped two categories of data, the time a particular species returns from the ocean to the river mouth, and the time the species migrates upstream.

If a paper contains a statement that would restrict the time of return of the mature fish to their appearance offshore in the vicinity of the stream mouths, the reference is included in the first category. Should data be recorded on the time a mature fish are observed migrating upstream at any point in its course, the paper is cited in the second category. To facilitate compilation and comparison of data, the references are arranged geographically.

Time of return from ocean to stream mouth

Alaska

Atkinson, 1955
Chamberlain, 1907
Cobb & Kutchin, 1907
Davidson & Hutchinson, 1942
Davidson & Vaughan, 1941
Davidson, et al., 1943
Gilbert, 1895, 1924
Hanavan & Skud, 1954
Hutchinson, 1944
Thompson, 1931

British Columbia

Anon., 1903b
Babcock, 1916, 1918, 1931a
Bolton, 1930
Davidson, et al., 1943
Ekbaum, 1936
Fraser, 1917a
McHugh, 1915
Neave, 1949
Pritchard, 1932, 1936, 1941, 1944
Pritchard & DeLacy, 1944
Rounsefell & Kelez, 1940
Royal, 1951
Williamson, 1929
Williamson & Clemens, 1932

Washington

Anon., 1903b
Alexander, 1905
Jordan & Starks, 1896
Rich & Holmes, 1928
Stone, 1878

Oregon

Henry, 1953
Rivers, 1947

California

Anon., 1903b
Briggs, 1953
Clark, 1939
Dunn, 1880
Fry & Hughes, 1954
Green, 1887
Redding, et al., 1933
Scofield, 1920
Snyder, 1922
Stone, 1874

New Zealand

Hefford, 1929

Time of upstream migration

Japan

Sano, 1955
Tokahisa & Takeshi, 1934
U.S. Foreign Economic Administration, 1945

Siberia

Berg, 1948
Dymond, 1940
International North Pacific Fisheries
Commission, 1955

Kuznetzov, 1929
Novisoff, 1912
Popov, 1933

Alaska

Anon., 1914c, 1938c, 1942b
Bean, 1887b, 1891
Bower, 1920a, 1920b, 1922, 1923, 1925a,
1925b, 1926, 1927, 1929a, 1929b, 1930,
1931, 1932, 1933, 1934, 1935, 1936, 1938a,
1938b, 1940, 1941
Bower & Aller, 1915, 1917a, 1917b, 1919
Bower & Fassett, 1914
Bowers, 1899
Bowser, 1909
Brett & McConnell, 1950
Chamberlain, 1907
Chamberlain & Bower, 1913
Chapman, 1941
Cobb, 1910, 1917
Coker, 1922
Evermann, 1905
Davidson, 1940a, 1940b
Davidson & Christey, 1940
Davidson & Vaughan, 1939a, 1941
Davidson, et al., 1943 Dymond, 1940
Edson, et al., 1955
Evermann et al., 1907b
Higgins, 1940
Hume, 1893
Hutchinson, 1944
Kirkness, et al., 1952, 1953
Leach, 1926, 1927, 1932
Marsh & Cobb, 1908, 1910
McDonald, 1894a
Moser, 1899, 1902

Alaska (cont.)

Parker & Kirkness, 1951
Rathbun, 1894
Rich & Ball, 1929b
Skud, 1955
Smith, 1917
Townsend, 1899
Vaughan, 1947
Ward, 1920a, 1920b
Wynne-Edwards, 1947a

British Columbia

Anon., 1904b
Aro, 1952
Babcock, 1903, 1906, 1907, 1910,
1914, 1916, 1918, 1921, 1922,
1923, 1929, 1930, 1931b
Barnaby, 1944
Brett & Pritchard, 1946a
British Columbia, 1941
Carl & Clemens, 1948
Clemens, 1946b
Clemens, et al., 1938
Craigie, 1926
Davidson, et al., 1943
Dombroski, 1952
Foerster, 1929a, 1935, 1955
Foerster & Pritchard, 1935
Foerster & Ricker, 1953
Foskett, 1947a
Fraser, 1917a
Gibson, 1923
Gilbert, 1922, 1923, 1924a
Godfrey, et al., 1954
Hunter, 1948, 1949a
Killick, 1955
Milne, 1950b, 1955
Milne, 1917
Neave, 1943, 1953
Pritchard, 1931a, 1937a, 1940b
1943c, 1945b
Pritchard & Cameron, 1940
Pritchard & DeLacy, 1944
Rathbun, 1900
Ricker, 1947
Ricker & Robertson, 1935
Royal, 1951

British Columbia (cont.)

Thompson, 1941, 1942
Williamson, 1927

Washington

Anon., 1915, 1931b, 1938b, 1939
Abernathy, 1887
Brice, et al., 1898
Bryant, 1949
Burner, 1951
Chapman, 1941
Cobb, 1911
Crawford, 1908
Davidson, 1940b
Evermann & Meek, 1898
Fish, 1948
Gilbert & Evermann, 1895
Jordan & Starks, 1896b
Leach, 1927
Little, 1898
Marr, 1944
O'Malley, 1904
Parkhurst, 1950b
Parkhurst, et al., 1950
Radcliffe, 1920
Rathbun, 1900
Rich, 1922, 1942
Rich & Holmes, 1928
Silliman, 1950
Smith, 1898b, 1900
Smoker, 1954
Snyder, 1936a
Stone, 1878c

Oregon

Anon., 1938a
Barin, 1887
Chapman, 1941
Cleaver, 1951
Cobb, 1911
Jordan & Gilbert, 1887
Leach, 1927
McKernan, et al., 1950
Parkhurst, 1950b
Parkhurst, et al., 1950
Radcliffe, 1920
U.S. Fish and Wildlife Service, 1924
Van.Hyning, 1951

California

Anon., 1916a, 1917
Bean, 1892
Brown, 1937
California, State of, 1874-1875,
1876-1877, 1886, 1898, 1900, 1945,
1952-1954
Clark, 1929b, 1939, 1943
Cobb, 1911
Collins, 1892
Curtis & Fraser, 1948
Erkkila, et al., 1950
Greene, 1911b, 1915b
Hanson, et al., 1940a
Hatton & Clark, 1942
Jordan, 1892
Kerr, 1953
Kimsey, 1951
Leach, 1927
McLean, 1945
Moffett, 1949
Moffett & Smith, 1950
Murphy, 1952
Murphy & Shapovalov, 1951
Needham, et al., 1943
Needham, et al., 1941
Parker & Hanson, 1944
Radcliffe, 1920
Ravenel, 1896
Rich, 1922
Rutter, 1904b, 1908
Scofield, 1919a, 1919b, 1929
Shapovalov & Taft, 1954
Shebley, 1921
Smith, 1900
Smedley, 1952
Snyder, 1923, 1931, 1936a
Stone, 1874a, 1874b, 1883a
Sumner & Smith, 1940
Townsend, 1904
Van Cleve, 1945
Worth, 1895

Idaho

Evermann, 1897

New Hampshire

Hoover, 1936

New Zealand

Pacific Coast

Hefford, 1930, 1931, 1932, 1934a,
1934b, 1935, 1936, 1938, 1940,
1941
Hobbs, 1937
Young, 1949

Brice, et al., 1898
Cobb, 1917
Coker, 1922
Evermann, 1905
Hume, 1893

SIZE AT TIME OF RETURN

The following references give the size, expressed as length or weight, or both, attained by the species at the time of its capture. These data include captures of returning migrants either in salt or freshwater, as well as salmon taken during or immediately after spawning. To facilitate compilation and comparison of data, the references are arranged geographically.

Siberia

British Columbia (cont.)

Baievsky, 1926
Cobb, 1917
Kuznetsov, 1928
Novisoff, 1912

Clemens (cont.), 1943, 1944, 1946a,
1946b, 1947, 1948, 1950
Clemens & Clemens, 1926, 1927, 1928,
1929, 1930, 1931, 1932a, 1933,
1934, 1935, 1936, 1937
Cobb, 1917
Dombroski, 1952, 1954
Dymond, 1932, 1936
Foerster, 1929a, 1929b, 1947b, 1955
Foerster & Pritchard, 1941
Foerster & Ricker, 1953
Foskett, 1951a, 1952a, 1953, 1954, 1955b
Fraser, 1917a, 1921
Gilbert, 1913b, 1914b, 1915, 1916,
1918, 1919, 1920, 1922, 1923, 1924a,
1925
Godfrey, et al., 1954
Hunter, 1949b
Milne, 1950a
Neave, 1939, 1949
Neave, et al., 1953
Pritchard, 1932a, 1937c
Rathbun, 1900
Ricker, 1939b
Robertson, 1948
Scattergood, 1949
Stone, 1928a, 1928b, 1930b
Tanner, et al., 1890
Williamson & Clemens, 1932

Alaska

Bean, 1887a, 1887b
Cobb, 1910, 1917
Davidson & Vaughan, 1941
Evermann & Goldsborough, 1907b
Gilbert, 1924c
Holmes, 1934
Kirkness, et al., 1952, 1953
Marsh & Cobb, 1910
Moser, 1899
Parker & Kirkness, 1951
Parker, et al., 1952
Skud, 1955
Tanner, et al., 1890
Townsend, 1899

British Columbia

anon., 1903b
Andrekson, 1950b
Andrekson & Foskett, 1950a
Aro, 1952
Babcock, 1918
Carl, 1939
Clemens, 1930, 1932, 1935, 1938a
1939a, 1939b, 1940a, 1941, 1942,

Washington

Anon., 1903b
Burner, 1951
Chapman, 1940a
Evermann & Meek, 1898
Jordan & Starks, 1896b
McDonald, 1895
Pressey, 1953
Radcliffe, 1920
Rathbun, 1900
Rich, 1940a
Rich & Holmes, 1928
Scattergood, 1949
Silliman, et al., 1947
Stone, 1878c

Oregon

Henry, 1954
Van Hyning, 1951

California

Anon., 1903b, 1918a, 1928,
Briggs, 1953
California, State of, 1894
Cheney, 1931
Clark, 1929b, 1930
Collins, 1892
Curtis, 1948
Fraser & Pollitt, 1951
Greene, 1911b
Hanson, et al., 1940a
Jordan, 1892
Kimsey, 1951
McLean, 1945
Needham, et al., 1941
Radcliffe, 1920
Rutter, 1904b
Scofield, 1916, 1920b
Shapovalov & Taft, 1954
Smedley, 1952
Snyder, 1921a, 1921b, 1922, 1923
1924b, 1931
Stone, 1874b, 1876a, 1880, 1883a, 1884c
Taft, 1938b
Wales & Coots, 1955a

Idaho

Evermann, 1896
Evermann & Meek, 1898
Jordan, 1884

Montana

Beal, 1955

Maine

Scattergood, 1949
Smith, 1920
U.S. Fish and Wildlife Service, 1940b

New Hampshire

Hoover, 1936

Lake Ontario

Anon., 1921a, 1923

New Zealand

Hefford, 1929, 1932, 1934a, 1934b,
1935, 1936, 1938, 1940, 1941,
1946
U.S. Fish and Wildlife Service, 1887
Young, 1948

Pacific Coast

Brice, et al., 1898
Cobb, 1911, 1917
Coker, 1922
Evermann, 1905
Gilbert, 1914a
Hume, 1893
Jordan & Gilbert, 1887

AGE AT TIME OF RETURN

Data on the age composition of salmon at the time of their spawning migrations as determined by scale, or marking and recapture studies, are contained in the following references. To facilitate compilation and comparison of data, the references are arranged geographically.

Japan	British Columbia (cont.)
Mihara, et al., 1951	Clemens, 1930, 1935a, 1935b, 1938a,
Oshima, 1934	1938b, 1939a, 1939b, 1940a, 1941,
	1942, 1943, 1944, 1946a, 1946b,
Siberia	1947, 1948, 1950, 1952
Berg, 1948	Clemens & Clemens, 1926, 1927, 1928,
International North Pacific Fisheries	1929, 1930, 1931, 1932a, 1932b,
Commission, 1955	1933, 1934, 1935, 1936, 1937
Kuznetsov, 1928	Cobb, 1917
	Davidson, et al., 1943
	Dombroski, 1952, 1954
Alaska	Dymond, 1932
Bean, 1891	Foerster, 1929b, 1934, 1935, 1936a,
Bower, 1933	1936b, 1938a, 1943, 1947b, 1949,
Bower & Aller, 1917a	1954b, 1955
Chamberlain, 1907	Foerster & Fritchard, 1935
Davidson, 1940a, 1940b	Foerster & Ricker, 1953
Davidson & Hutchinson, 1942	Foskett, 1951a, 1953, 1954, 1955a,
Davidson & Shostrom, 1936	1955b
Davidson & Vaughan, 1939b, 1941	Fraser, 1921
Davidson, et al., 1943	Gilbert, 1913a, 1913b, 1914b, 1916,
Edson, et al., 1955	1918, 1919, 1922, 1923, 1924a, 1925
Gilbert, 1924c	Godfrey, et al., 1954
Gilbert & Rich, 1929	Hunter, 1949b
Higgins, 1932	Milne, 1955
Holmes, 1934	Mottley, 1929
Juday, 1935	Neave, 1949, 1951, 1953
Kirkness, et al., 1952, 1953	Neave, et al., 1953
Koo, 1955	Neave & Pritchard, 1942
Parker & Kirkness, 1951	Pritchard, 1932a, 1932d, 1937b, 1937c,
Vaughan, 1947	1938a, 1939a, 1940a, 1940b, 1943a,
	1943b
	Ricker, 1938b
British Columbia	Robertson, 1948
Andrekson, 1950b	Rounsefell & Kelez, 1940
Anon., 1914a, 1951c, 1953c, 1954, 1955c	Thompson, 1941, 1942, 1945b
Babcock, 1907, 1908, 1931a	Williamson & Clemens, 1932
Barnaby, 1944	
Bowser, 1913	
Carl & Clemens, 1948	
Chatwin, 1953a	

Washington

Davidson, 1940b
Fish, 1948
Kelez, 1937
Oregon Fish Commission, 1931
Pressey, 1953
Rich, 1921b, 1922, 1926, 1948
Rich & Holmes, 1928
Smith, 1900
Smoker, 1954

Oregon

Cleaver, 1951
Henry, 1953, 1954

Pacific Coast

Anon., 1937
Cobb, 1917
Higgins, 1932
Jordan, 1896c, 1904a
Milne, 1913
Neave, 1948
O'Malley, 1920a
U.S. Fish and Wildlife Service, 1945

Maine

U.S. Fish and Wildlife Service, 1940b

New Zealand

Hefford, 1929, 1931

TYPE OF SPAWNING STREAM

Statements on or general descriptions of the types of streams in which salmon migrate or in which the young occur are contained in the following references. Some data of this nature may be included in the sections treating the nature of spawning sites and the section on distance traveled upstream.

Siberia

Kuznetzov, 1928

Alaska

Anon., 1904a
Bean, 1891

California

Briggs, 1953
Brown, 1937
Clark, 1929a, 1929b
Curtis & Fraser, 1948
Eigenmann, 1890
Fry & Hughes, 1954
Greene, 1915b
Murphy, 1952
Rich, 1921b, 1922, 1926
Rutter, 1902, 1904b
Scofield, 1922
Shapovalov & Taft, 1954
Smedley, 1952
Smith, 1900
Snyder, 1921a, 1921b, 1922, 1924b, 1931, 1936b
Snyder & Scofield, 1924a
Stone, 1874b

Idaho

Evermann, 1897

New Hampshire

Hoover, 1936

Alaska (cont.)

Kirkness, et al., 1952
McDonald, 1894a
Wynne-Edwards, 1947a

British Columbia

Babcock, 1931a
Clemens, 1935a, 1946b, 1951
Davidson, et al., 1943
Foerster, 1935, 1936c
Foerster & Pritchard, 1935
Gilbert, 1914b
Neave, 1949
Neave & Wickett, 1953
Pritchard, 1934e, 1940b, 1949
Radcliffe, 1928
Rathbun, 1900
Thompson, 1945b

Washington

Anon., 1937
Bryant, 1949
Burner, 1951
Fish, 1948
O'Malley, 1904
Rathbun, 1900
Rich, 1948

California

Brown, 1937
Clark, 1943
Curtis, 1945
Curtis & Fraser, 1948
Fraser & Pollitt, 1951
Greene, 1911b
Hatton, 1940
Hatton & Clark, 1942
Kimsey, 1951
Moffett, 1949
Murphy & Shapovalov, 1951
Parker & Hanson, 1944
Rutter, 1904b
Sumner & Smith, 1940
Van Cleve, 1945

Pacific Coast

Anon., 1937
Brice, et al., 1898
Evermann, 1905
Hume, 1893
Jordan & Gilbert, 1887

Maine

U.S. Fish and Wildlife Service, 1940b

New Zealand

Hobbs, 1937

DISTANCE TRAVELED UPSTREAM

The information on this subject consists chiefly of brief, isolated statements on the maximal or minimal distances from the river mouths that populations of a particular salmon species ascend a drainage system. The references are arranged geographically.

Siberia

International North Pacific Fisheries
Commission, 1955
Kuznetzov, 1928

Alaska

Bean, 1887b, 1891
Davidson & Christey, 1940
Davidson & Hutchinson, 1942
Davidson, et al.,
Evermann & Goldsborough, 1907b

Alaska (cont.)

Gilbert, 1924c
Gilbert & O'Malley, 1921
Hanavan & Skud, 1954
Rich, 1924
Townsend, 1899
Ward, 1920a
Wynne-Edwards, 1946, 1947a, 1952

British Columbia

Babcock, 1931a
 Carl & Clemens, 1948
 Clemens, 1935b
 Davidson, et al., 1943
 Foerster & Pritchard, 1935
 Fraser, 1917a
 Killick, 1955
 Neave, 1953
 Pritchard, 1936a
 Radcliffe, 1928

Washington

Anon., 1903b
 Bryant, 1949
 Burner, 1951
 Gilbert & Evermann, 1895
 McDonald, 1895
 Stone, 1878c

California

California, State of, 1870-1871
 Green, 1887
 Greene, 1911b
 Hallock, et al., 1952
 Jordan, 1892
 Murphy, 1952
 Redding, et al., 1933
 Stone, 1874b
 Sumner & Smith, 1940
 Van Cleve, 1945

Pacific Coast

Brice, et al.,
 Evermann, 1905
 Jordan & Gilbert, 1887

NATURE OF SPAWNING SITE

The following references contain data (usually brief and incomplete) concerning the spawning grounds utilized by the various salmon species.

The entries are arranged geographically.

Japan

Sano, 1955

Alaska

Bower, 1925b
 Chamberlain, 1907
 Davidson & Hutchinson, 1942
 Davidson, et al., 1943
 Gilbert & Rich, 1929
 Hanavan & Skud, 1954
 Leach, 1922
 Moser, 1899
 Parker, et al., 1952

British Columbia

Anon., 1954
 Brett, 1952a
 Davidson, et al., 1943
 Foerster, 1929a, 1935, 1936c

British Columbia (cont.)

Foskett, 1947a, 1947b
 Hickman, 1932
 Mac Day, 1931
 Pritchard, 1940b
 Robertson, 1920
 Rounsefell & Kelez, 1940

Washington

Burner, 1951
 Crawford, 1908
 Gangmark & Fulton, 1952
 Rich, 1948
 Schultz, 1935
 Smith, 1900
 Stone, 1878c

Oregon

Hasler & Farner, 1942

California

Briggs, 1953
Brown, 1937
Clark, 1930
Curtis, 1945
Curtis & Fraser, 1948
Fraser & Pollitt, 1951
Hallock, et al., 1952
Hanson, 1940
Hatton, 1940
Jordan, 1892
Kimsey, 1951
Redding, et al., 1933
Rutter, 1902
Smith, 1900
Sumner & Smith, 1940
Taft, 1938b
Van Cleve, 1945
Worth, 1895

Pacific Coast

Evermann, 1905
Jordan, 1896c, 1904a
Leach, 1922
O'Malley, 1920a
U.S. Fish and Wildlife Service, 1945

Idaho

Evermann, 1896

New Hampshire

Hoover, 1936

France

De Bellesme, 1896

New Zealand

Hobbs, 1937

SPAWNING PERIOD

References containing data on spawning period include both statements regarding the dates on which spawning activity was observed or was about to occur, and those statements of the duration of spawning period. It is to be noted that remarks regarding the duration of spawning period may be only approximations based on duration and/or peak of upstream migration, and not on direct observation of spawning fish.

Japan

Ohno, 1934

Siberia

Andriashev, 1955
Berg, 1945
Kuznetzov, 1928
Yenatina, 1954

Alaska

Bower, 1921, 1923, 1927, 1929a
Chamberlain, 1907
Davidson, 1940a, 1940b

Alaska (cont.)

Davidson & Vaughan, 1939, 1941
Davidson, et al., 1943
Gilbert, & O'Malley, 1921
Gilbert & Rich, 1929
Hanavan & Skud, 1954
March & Cobb, 1907, 1908, 1911
Moser, 1899
Parker, et al., 1952
Ward, 1920b
Wynne-Edwards, 1947a

British Columbia

Anon., 1953c

British Columbia (cont.)

Babcock, 1914, 1915, 1916, 1917, 1920
 1921, 1923, 1927, 1928, 1930, 1931b
 Birchall, 1915
 Birchall & Hickman, 1914
 Brett & Pritchard, 1946a
 Clemens, 1935a, 1939b, 1946b
 Collison & Hickman, 1917
 Dymond, 1932
 Foerster, 1929b, 1936a, 1937, 1944b
 Foerster & Ricker, 1953
 Foskett, 1947b
 Fraser, 1918
 Gibson, 1921, 1922, 1923, 1924, 1925,
 1926, 1927, 1929, 1930, 1931, 1932
 Gilbert, 1916
 Hickman, 1914, 1915, 1918, 1921, 1922,
 1923, 1924, 1925, 1926, 1927, 1928, 1929,
 1930, 1931, 1932
 Hickman & Collison, 1920
 Killick, 1955
 McConnell & Brett, 1946
 Motherwell, 1934
 Neave, 1943, 1949, 1953
 Pritchard & Cameron, 1940
 Pritchard & Neave, 1942
 Rathbun, 1900
 Ricker, 1938b
 Rounsefell & Kelez, 1940
 Schaefer, 1951
 Stone, 1914, 1915a, 1915b, 1916a, 1916b,
 1917a, 1917b, 1918a, 1918b, 1919, 1920a,
 1920b, 1921a, 1921b, 1922a, 1922b, 1923a,
 1923b, 1924a, 1924b, 1925a, 1925b, 1926a,
 1927a, 1928a, 1928b, 1929a, 1929b, 1930a,b,
 1931a, 1931b, 1932a, 1932b,
 Wisley, 1920
 Withler, et al., 1949

Washington

Anon., 1903b
 Bryant, 1949
 Chapman, 1943
 Craig & Hacker, 1940
 Davidson, 1940b
 Evermann & Meek, 1898
 Fish, 1948
 Gangmark & Fulton, 1952
 O'Malley, 1904
 Rathbun, 1900
 Rich & Holmes, 1928
 Stone, 1878c
 Schultz, 1935

Oregon

Barin, 1887
 Craig & Townsend, 1946
 Stone, 1879a
 Sumner, 1953

California

Clark, 1930, 1943
 Cramer & Hammack, 1952
 Curtis & Fraser, 1948
 Hanson, et al., 1940
 Hubbs, 1946
 Kimsey, 1951, 1955
 McLean, 1945
 Moffett, 1949
 Moffett & Smith, 1950
 Murphy, 1952
 Needham, et al., 1941
 Parker & Hanson, 1944
 Ravenel, 1896a
 Redding, 1876
 Redding, et al., 1933
 Rutter, 1904b, 1907, 1908
 Shaw & Maga, 1943
 Stone, 1874b, 1876a, 1878b, 1880,
 1883a
 Sumner & Smith, 1940
 Taft, 1938b
 Van Cleve, 1945
 Worth, 1895

Pacific Coast

Brice, et al., 1898
 Hume, 1893
 Leach, 1922, 1930, 1931, 1932
 Ravenel, 1899, 1900, 1901, 1902
 Smith, 1899, 1900

Idaho

Evermann, 1896, 1897
 Evermann & Meek, 1898
 Locke, 1929

New Hampshire

Hoover, 1936

France

De Bellesme, 1896

Ayson, 1910
Hobbs, 1937

Anon., 1949b

SEXUAL DIMORPHISM

The majority of references in this category contain only brief remarks on sexual dimorphism. It should be noted that papers presenting data only on weight or length differences are not included in this section.

Babcock, 1931a	Jordan & Gilbert, 1887
Bean, 1891, 1894	Kimsey, 1951
Brett & Pritchard, 1946a, 1946b	Kuznetzov, 1928
Brice, et al., 1898	Locke, 1929
Briggs, 1953	Lockington, 1880
Carl & Clemens, 1948	Marr, 1944
Chamberlain, 1907	O'Malley, 1904, 1920a
Clemens, 1946b	Pritchard, 1937a
Davidson, 1935	Ricker, 1940
Davidson & Vaughan, 1941	Rutter, 1902, 1904b
Davidson, et al., 1943	Scattergood, 1949
Evermann & Goldsborough, 1907b	Schultz, 1935
Foerster, 1954b	Shapovalov, 1947
Foerster & Ricker, 1953	Shapovalov & Taft, 1954
Gilbert, 1924c	Stone, 1874b, 1878c, 1884a, 1897
Gilbert & O'Malley, 1921	Suckley, 1874
Hoover, 1936	Taft, 1938b
Jordan, 1892, 1896c, 1904a, 1907	Tohernavin, 1937
Jordan & Evermann, 1896	

SPAWNING BEHAVIOR

Courtship, pairing, nest building and actual spawning activity are included in this category. The data hardly seems sufficient for the systematist to make reliable comparisons of spawning behavior pattern between the species.

Anon., 1953c	Evermann, 1896, 1897, 1905
Babcock, 1931a	Foerster, 1935
Bean, 1894	Hobbs, 1937
Berg, 1948	Hoover, 1936
Bower, 1923	Jordan, 1892, 1896c
Brice, et al., 1898	Jordan & Evermann, 1896
Briggs, 1953	Jordan & Gilbert, 1887
Burner, 1951	Kimsey, 1951, 1955
Chamberlain, 1907	McLean, 1945
Crawford, 1908	Moser, 1899
Curtis & Fraser, 1948	Ricker, 1938b

Rutter, 1902, 1904b, 1907
Schultz, 1935
Shapovalov & Berrian, 1940
Shapovalov & Taft, 1954

Smith, 1900
Stone, 1874b, 1884a
Withler, et al., 1949

POST-SPAWNING BEHAVIOR

Papers containing data on the activity of salmon after spawning, even if the statements only indicated that the fish were observed dying, are included in the following list:

Bean, 1891, 1894
Brice, et al., 1898
Briggs, 1953
Curtis & Fraser, 1948
Dunn, 1880
Evermann, 1897
Evermann & Meek, 1898
Gilbert, 1914a
Greene, 1911b
Green, 1887
Hobbs, 1937
Hoover, 1936
Howard, 1948
Hume, 1893
Jordan, 1892, 1896c, 1904a
Jordan & Evermann, 1896

Killick, 1955
Kimsey, 1955
Locke, 1929
Ohno, 1934
Oshima, 1934
Parker & Hanson, 1944
Rathbun, 1900
Rutter, 1902, 1904b
Schultz, 1935
Stone, 1874b, 1878c, 1897
Willis, 1954

DATE EGGS HATCH

Data in this category include both those papers recording the date of egg hatching and those noting the date salmon fry emerge from the gravel and are first visible on the stream bottom. Hatchery observations are not included. To facilitate analysis of regional trends, the references are arranged geographically.

Japan

Kobayashi & Yuki, 1954a
Ohno, 1934

Siberia

International North Pacific Fisheries
Commission, 1955

Alaska

Davidson, 1940a
Davidson & Vaughan, 1939b
Hanavan & Skud, 1954
Marsh & Cobb, 1910
Vaughan, 1947

British Columbia

Carl & Clemens, 1948
Clemens, 1935a
Foerster, 1937, 1938b, 1944b
Foerster & Pritchard, 1935
Fraser, 1917a
Mottley, 1929
Pritchard, 1944a
Wickett, 1951
Williamson, 1927
Withler, et al., 1949

Washington

Crawford, 1908
Evermann & Meek, 1898
Gangmark & Fulton, 1952
Rich, 1922, 1948
Smith, 1915

Oregon

Rivers, 1947

California

Anon., 1916b
Kimsey, 1951
Moffett & Smith, 1950
Redding, et al., 1933
Rich, 1922
Rutter, 1902
Scofield, 1898a, 1898b
Shapovalov & Berrian, 1940
Shaw & Maga, 1943
Stone, 1874b
Van Cleve, 1945

Pacific Coast

Leach, 1922
Jordan, 1896c
Jordan & Evermann, 1896
Smith, 1898a
U.S. Fish and Wildlife Service, 1945

Idaho

Evermann, 1897
Evermann & Meek, 1898

Montana

Beal, 1955

France

De Bellesme, 1896

BEHAVIOR OF FRY AND FINGERLINGS

Behavioral observations, other than the mere mention of time of seaward migration, of fry or fingerlings from the time the fry emerge from the gravel to the time the fingerlings or smolts leave freshwater are included in the following references:

Anon., 1953c, 1954
Babcock, 1904a, 1904b
Black, 1951b
California, State of, 1900
Chamberlain, 1907
Clemens, 1951, 1953
Davidson & Vaughan, 1941
Foerster, 1925, 1929c, 1955
Foerster & Ricker, 1953

Fraser, 1917a, 1919
Hallock, et al., 1952
Hatton, 1940
Hatton & Clark, 1942
Hoar, 1951a, 1953, 1954
Kerr, 1953
Kimsey, 1951
Kobayashi, 1953
Kubo, 1955

MacKimon & Brett, 1955
 Moffett & Smith, 1950
 Moser, 1899
 Murphy & Shapovalov, 1951
 Neave, 1955
 Pritchard, 1940b, 1955a
 Rich, 1948
 Ricker, 1940
 Robertson, 1920

Rutter, 1902, 1904b
 Scofield, 1898b, 1900
 Shapovalov & Berrian, 1940
 Shapovalov & Taft, 1954
 Smith, 1892a, 1899, 1900
 Stone, 1884a, 1897
 U.S. Fish and Wildlife Service, 1935
 Wales & Coots, 1955a
 Withler, et al., 1949

TIME YOUNG SPEND IN FRESHWATER

Information on the length of time young spend in freshwater, whether from scale readings of young or adults, or from direct observation, is contained in the following references. To facilitate detection of trends, the references are arranged geographically.

Japan

Aoki, 1934
 Handa, 1934
 Kobayashi & Yuki, 1954a
 Ohno, 1934
 Oshima, 1934

Alaska

Anon., 1955e
 Barnaby, 1944
 Bower, 1934
 Davidson & Vaughan, 1939b
 Gilbert, 1924c
 Gilbert & Rich, 1929
 Holmes, 1934
 Juday, 1935
 Parker & Kirkness, 1951

British Columbia

Anon., 1951c, 1952
 Babcock, 1904a, 1908, 1931
 Bowser, 1913
 Brett & McConnell, 1950
 Carl & Clemens, 1948
 Clemens, 1935a, 1935b, 1936a, 1939a, 1940a, 1946a, 1946b, 1947, 1948, 1950, 1951, 1952
 Clemens & Clemens, 1926, 1927, 1928, 1929, 1930, 1931, 1932a, 1933, 1934, 1935, 1936, 1937

British Columbia (cont.)

Clemens, et al., 1938
 Foerster, 1925, 1929c, 1934, 1936a, 1936b, 1937, 1938b, 1944b, 1954b, Foerster & Pritchard, 1935
 Foerster & Ricker, 1953
 Foskett, 1951a, 1952a, 1954, 1955a, 1955b
 Fraser, 1916, 1917a
 Gilbert, 1913a, 1913b, 1914b, 1915, 1919, 1920, 1922, 1923, 1924a, 1925
 Hourston, et al., 1955
 Hunter, 1949a
 MacKimon & Brett, 1955
 Milne, 1917
 Mottley, 1929
 Neave, 1949, 1951
 Neave & Pritchard, 1942
 Neave & Wickett, 1953
 Pritchard, 1936b, 1939a, 1940b, 1943a
 Robertson, 1921
 Withler, et al., 1949

Washington

Earp, et al., 1953
 Evermann & Meek, 1898
 McDonald, 1894c, 1895
 Rich, 1922, 1926, 1948
 Smoker, 1953, 1954

Oregon

Cleaver, 1951
Craig & Townsend, 1946
Henry, 1953
McKernan, et al., 1950

California

Babcock, 1931a
Curtis, 1945
California, State of, 1900
Clark, 1929a, 1929b
Curtis & Fraser, 1948
Hallock, et al., 1952
Hubbs, 1946
Kerr, 1953
Moffett & Smith, 1950
Murphy, 1952
Murphy & Shapovalov, 1951
Needham, et al., 1941
Redding, et al., 1933

Rich, 1922, 1926
Rutter, 1904b, 1908
Scofield, 1898a, 1898b
Shapovalov & Taft, 1954
Snyder, 1922, 1924b
Van Cleve, 1945
Wales & Coots

Pacific Coast

Higgins, 1932
Hume, 1893
Smith, 1898a

Idaho

Evermann, 1897
Evermann & Meek, 1898

Intermountain States

Locke, 1929

DATE OF SEAWARD MIGRATION

Statements of the date the young migrate downstream anywhere along the migratory course are contained in the following references, which are arranged geographically.

Japan

Kobayashi & Yuki, 1954a
Oshima, 1934
Sano & Kobayashi, 1952, 1953a

Siberia

International North Pacific Fisheries
Commission, 1955

Alaska

Barnaby, 1944
Bower, 1921, 1925b, 1938a
Bower & Fassett, 1914
Chamberlain, 1907
Davidson, 1940b
Davidson & Vaughan, 1941

Alaska (cont.)

Davidson & Hutchinson, 1942
Gilbert & Rich, 1929
Holmes, 1934
Parker, et al., 1953
Skud, 1955
Vaughan, 1947

British Columbia

Babcock, 1904a, 1904b, 1905
Brett & Mackinnon, 1953
Brett & McConnell, 1950
Brett & Pritchard, 1946a
Clemens, 1951
Clemens, et al., 1938
Foerster, 1929c, 1936a, 1952
Foerster & Pritchard, 1935

British Columbia (cont.)

Foerster & Ricker, 1953
Fraser, 1917a
MacKimon & Brett, 1955
Neave, 1947, 1953
Pritchard, 1931a, 1936b, 1936c, 1937a,
1940b, 1944a, 1944c
Robertson, 1921
Rounsefell & Kelez, 1940
Withler, et al., 1949

Washington

Davidson, 1940b
Fish, 1948
Greene, 1911b
Hamilton & Andrew, 1954
Johnson, et al., 1948
Marr, 1944
Rich, 1922, 1948

Oregon

Gharrett & Hodges, 1950
Newcomb, 1948
Rivers, 1947
Sumner, 1953

California

California Fish and Game, 1932
Clark, 1930
Cramer, & Hammack, 1952
Erkkila, et al., 1950
Hallock, et al., 1952
Hanson, et al., 1940
Hatton, 1940
Hatton & Clark, 1942
Hubbs, 1946
Moffett, 1949
Moffett & Smith, 1950
Murphy, 1952
Murphy & Shapovalov, 1951
Needham, et al., 1943
Needham, et al., 1941
Rich, 1922
Rutter, 1902, 1904b
Scofield, 1898a, 1898b, 1900
Shapovalov & Taft, 1954
Snyder, 1922, 1931
Stone, 1874b
Van Cleve, 1945
Wales & Coots, 1955a

Pacific Coast

Smith, 1899, 1900

Idaho

Evermann, 1897

SIZE AT TIME OF SEAWARD MIGRATION

Data on the size of young salmon at the time of seaward migration, taken at any place along the migratory route, are contained in the following references:

Anon., 1915c, 1955e
Babcock, 1903, 1904a, 1904b
Barnaby, 1944
Brett & McConnell, 1950
Chamberlain, 1907
Chamberlain & Bower, 1913
Craig & Townsend, 1946
Curtis, 1945
Davidson & Vaughan, 1941
Davison, et al., 1954
Erkkila, et al., 1950
Foerster, 1929c, 1934, 1936a, 1936b,
1944b

Foerster & Pritchard, 1935
Fraser, 1919
Gharrett & Hodges, 1950
Gilbert, 1913b, 1915, 1916, 1920
Gilbert & Evermann, 1895
Hallock, et al., 1952
Hanson, et al., 1940
Hatton, 1940
Hatton & Clark, 1942
Hourston, et al., 1955
McDonald, 1894c, 1895
Milne, 1913
Moffett, 1949

MARKING OR TAGGING AND RECAPTURE DATA

Study of the marking or tagging and recapture data in this section should provide material to aid in racial analyses, determination of migration rates and distances, as well as homing behavior.

- Anon., 1903b, 1904c, 1916b, 1924, 1929b, 1937, 1951c, 1952, 1953c, 1954, 1955b, 1955d
Aro, 1951
Babcock, 1914
Barnaby, 1944
Bolton, 1930
Bowser, 1913
Brett, 1952a
Brett & Pritchard, 1946b
British Columbia, 1941
California, State of , 1904, 1950-52, 1952-54
Chamberlain, 1907
Chatwin, 1953b
Clark & Hatton, 1942
Curtis, 1945
Clemens, 1928, 1929, 1930, 1932, 1937, 1939c
Clemens, et al., 1939
Coker, 1922
Craigie, 1926
Davidson, 1940b
Davidson & Christey, 1940
Davidson & Vaughan, 1939c
DeLacy & Neave, 1947
Elling & Macy, 1955
Erkkila, et al., 1950
Fish, 1948
Foerster, 1929e, 1930b, 1934, 1936a, 1936b, 1941, 1942, 1943, 1944a, 1945, 1946a, 1946b, 1947a, 1947b, 1948, 1949, 1954b
Fry & Hughes, 1951
Gilbert, 1924b
Gilbert & Rich, 1927
Godfrey, et al., 1954
Greene, 1911b
Hefford, 1931, 1934b, 1936
Higgins, 1928, 1929, 1930, 1940
Holmes, 1928
Hunter, 1951
International North Pacific Fisheries Commission, 1955
Jensen, 1953
Jordan, 1892, 1896c, 1904b
Kauffman, 1951
Kelez, 1937
Killick, 1955
Kirkness, et al., 1952, 1953
Marsh & Cobb, 1907, 1908, 1911
McKernan, et al., 1950
Milne, 1949, 1952, 1955
Milne, 1917
Morgon & Cleaver, 1954
Neave, 1941a, 1941b, 1951
Neave, et al., 1953
Newcomb & Matheson, 1946
O'Malley, 1924
O'Malley & Rich, 1911, 1920
Oregon Fish Commission, 1931
Parker & Hanson, 1944
Parker & Kirkness, 1951
Parker, et al., 1952
Powers, 1939
Pritchard, 1930, 1931b, 1931c, 1931d, 1932a, 1932b, 1932d, 1934b, 1934c, 1934d, 1934e, 1937b, 1938b, 1939a, 1940b, 1941, 1943b, 1944a, 1944c, 1944d, 1945c, 1947, 1948c
Pritchard & Brett, 1945
Pritchard & DeLacy, 1944a, 1944b
Pritchard & Neave, 1942
Rich, 1924, 1925a, 1927, 1935a, 1935c, 1939, 1941,
Rich & Holmes, 1928
Rich & Morton, 1930
Rich & Suomela, 1929a
Ricker & Robertson, 1935
Robertson, 1921
Rounsefell & Kelez, 1940
Royal, 1951
Rutter, 1902, 1904b, 1907
Sano, 1951, 1954
Sano & Kobayashi, 1953a, 1953b
Scheer, 1939
Scofield, 1920a
Silliman, 1948a, 1948b
Snyder, 1921b, 1922, 1923, 1928, 1931
Sumner, 1953
Taft, 1937a
Taft & Shapovalov, 1938a

Thompson,	1938, 1939, 1940, 1941,	Ward, 1939
1942, 1945a, 1945b		Williamson, 1927, 1929
U.S. Fish and Wildlife Service, 1939d		Williamson & Clemens, 1932
Van Cleve, 1942-1944		Withler, 1952a
Van Hyning, 1951		Withler, et al., 1949

HOMING INSTINCT

All discussion and data concerning homing instinct in salmon are included in this category.

Anon., 1903b, 1937	Mihara, et al., 1951
Aro, 1951	Milne, 1917
Babcock, 1931a	Neave, 1941b
Brett & MacKinnon, 1954	Oregon Fish Commission, 1931
Chamberlain, 1907	Powers, 1939, 1941
Clemens, 1935a, 1937, 1938b, 1939c, 1951, 1953	Pritchard, 1932d, 1934a, 1937b, 1939a, 1940b, 1941, 1943b, 1944c, 1948a
Craigie, 1926	Rich, 1937, 1939, 1948
Crawford, 1907	Rich & Ball, 1931
Davidson, 1940b	Rich & Holmes, 1928
Davidson & Vaughan, 1939b, 1941	Ricker, 1940
Foerster, 1941, 1946b	Ricker & Robertson, 1935
Fraser, 1919	Rounsefell & Kelez, 1940
Gilbert, 1914b, 1915, 1916, 1918, 1919	Rutter, 1902, 1904b, 1907
Gilbert & Rich, 1927	Sano, 1951
Hasler & Wisby, 1951	Scheer, 1939
Higgins, 1928	Shapovalov, 1940
Holmes, 1928	Shapovalov & Taft, 1954
Hume, 1893	Snyder & Scofield, 1924a
Huntsman, 1937a, 1937b	Taft & Shapovalov, 1938a
International North Pacific Fisheries Commission, 1955	U.S. Fish and Wildlife Service, 1945
Jordan, 1892, 1896c, 1904b	Verhoeven, 1952
Jordan & Gilbert, 1887	Ward, 1939
Kelez, 1937	White & Huntsman, 1938
Marsh & Cobb, 1911	Wisby & Hasler, 1954

GROWTH RATES

The following references include both ocean and stream growth data.
As a rule, hatchery growth records are not included. References are arranged geographically.

Japan

Honma & Murakawa, 1955
Kobayashi & Yuki, 1954a
Kobayashi, 1955
Sano & Kobayashi, 1952, 1953a

Siberia

Berg, 1948
International North Pacific Fisheries
Commission, 1955

Alaska

Chamberlain, 1907
Davidson & Vaughan, 1941
Koo, 1955
Parker & Kirkness, 1951

British Columbia

Clemens, 1930
Dunlop, 1924
Foerster, 1929a, 1929c, 1936a, 1947b
Foerster & Ricker, 1953
Fraser, 1916, 1917a, 1917b, 1918,
1919, 1921
Gilbert, 1914b, 1916, 1918, 1921
Ricker, 1938a, 1938b
Robertson, 1921
Rounsefell & Kelez, 1940

Washington

Marr, 1944
Rich, 1922, 1926

Oregon

Hasler, 1938
Hasler & Farner, 1942
Henry, 1954
Van Hying, 1951

California

Curtis, & Fraser, 1948
Matton, 1940
Matton & Clark, 1942
Hubbs, 1946
Rich, 1922, 1926
Rutter, 1902
Scofield, 1898a, 1898b, 1900
Shapovalov & Taft, 1954
Snyder, 1921b, 1922, 1923

New Zealand

Hefford, 1934b, 1936
Hobbs, 1937

France

De Bellesme, 1896

Italy

Besana, 1910

FOOD AND FEEDING HABITS

The following references contain data on the food and/or feeding habits of salmon. Hatchery studies are not included.

- Anon., 1952, 1953b, 1953c, 1955c
Babcock, 1931a
Barnaby, 1952,
Bean, 1891, 1894
Bowser, 1913
Carl & Clemens, 1948
Chamberlain, 1907
Chapman, 1936
Chapman & Quistorff, 1938
Clemens, 1935a, 1935b, 1939b, 1940b, 1951, 1953
Clemens, et al., 1938
Cobb, 1910, 1917, 1921
Curtis & Fraser, 1940
Davidson & Vaughan, 1941
Dymond, 1936
Einarsen, 1927
Fish, 1939
Foerster, 1925, 1937, 1941, 1942, 1944b, 1955
Foskett, 1951b
Fraser, 1916, 1917a, 1919, 1923
Fraser & Pollitt, 1951
Gilbert, 1913b, 1914a
Greene, 1911b, 1915c
Hasler, 1938
Heg & Hynning, 1951
Holmes, 1928
Hoover, 1936
International North Pacific Fisheries Commission, 1955
Jordan, 1894
Juday, 1935
Kendall, 1913
Konstantinov, 1951
Lowe, 1936
Locke, 1929
Maeda, 1955
Marsh & Cobb, 1908
Munro & Clemens, 1937
Nakai & Honjo, 1954
Oregon Fish Commission, 1949b
Pritchard, 1936c
Pritchard & Tester, 1939, 1941, 1942, 1943, 1944
Rich, 1921a, 1948
Ricker, 1934, 1937, 1938b, 1940, 1954
Robertson, 1921
Rounsefell & Kelez, 1940
Rutter, 1902, 1904b
Scofield, 1898b, 1900
Senter, 1940
Shapovalov & Taft, 1954
Silliman, 1941
Smith, 1895b
Snyder, 1922, 1924b, 1934
Snyder & Scofield, 1924a
Stone, 1874b, 1878c, 1884a, 1897
Sumner & Smith, 1940
Thompson, 1931
U.S. Fish and Wildlife Service, 1945
Williamson, 1927, 1930
Withler, 1948
Withler, et al., 1949

PARASITES AND DISEASES

A wide variety of parasites and diseases are known to attack salmon. It would appear that the life histories of those species affecting salmon under hatchery conditions are better known. The references are arranged according to the classification of the parasite.

General and Inclusive Accounts

Clemens, 1939c
Gilbert, 1918
Jordan, 1892, 1896c, 1904
Ricker, 1938, 1940
Rutter, 1902
Sano, 1951
Shapovalov & Taft, 1954
Stone, 1874
Ward, 1908

Protozoa

Bangham & Adams, 1954
Davis, 1927a, 1927b
Davison, et al., 1954
Fish, 1939
Guberlet, 1926
Smith & Quistorff, 1940
Wales & Wolf, 1955b

Platyhelminthes

(cestodes)

Bangham & Adams, 1954
Canavan, 1938
Dombroski, 1955
Eguchi, 1934
Kobayashi, 1934
Kuitunen-Ekbaum, 1933b
Lawler & Scott, 1954
Wardle, 1932, 1933

(trematodes)

Bangham & Adams, 1954
Guberlet, 1936
Haderlie, 1953
Linton, 1941

Nemathelminthes

Bangham & Adams, 1954
Ekbaum, 1936
Haderlie, 1953
Kuitunen-Ekbaum, 1933a
Smedley, 1933

Annelida

Earp & Schwab, 1954

Crustacean Arthropoda

Bangham & Adams, 1954
Bean, 1891
Foerster, 1929
Foerster & Ricker, 1953
Meehan, 1941
Wilson, 1912, 1916

Mollusca

Davis, 1953

Bacterial and Virus Diseases

Carl, 1939
Duff, 1932a, 1932b
Earp, et al., 1953
Fallera, 1926
Johnson & Bruce, 1952
Nishino, 1953
Rucker, et al., 1953

INTRODUCTIONS AND ACCLIMATIZATION

The analysis and comparison of waters in which salmon have been successfully established, as well as those waters where their introduction failed, may aid in the understanding of the ecological requirements and consequently the natural distribution of salmon. The references are arranged only by locality and not by species.

North America

Anon., 1910b, 1915a, 1921a, 1923, 1929a, 1951b, 1953c
Baird, 1874, 1876, 1878
Beal, 1955
Bean, 1882a, 1882b
Bigelow & Welsh, 1925
Bowers, 1907, 1912
Breder, 1924
Chamberlain, 1907
Cheney, 1887
Clemens, 1953
Cobb, 1911, 1917, 1921
Curtis, 1948
Davidson & Hutchinson, 1937, 1940
Fraser & Pollitt, 1951
Gilbert, 1914a
Huntsman, 1922
Johnson, 1914, 1915
Kendall, 1913
Leach, 1922, 1923, 1924, 1925, 1927, 1928, 1931, 1932
Leach & James, 1937, 1939
Leach, et al., 1939, 1941
Locke, 1929
Loomis, 1884
McDonald, 1893, 1894b
Moser, 1902
O'Malley, 1917, 1919, 1920a, 1920b, 1922, 1924
Radcliffe, 1921
Ravenel, 1896a, 1896b, 1898, 1899, 1900, 1901, 1902
Rich, 1925b
Robinson, 1884
Rockwood, 1876
Rutter, 1904b
Scattergood, 1949
Scofield, 1900
Slack, 1876
Smith, 1895a, 1898a, 1898b, 1917, 1919, 1929
Smiley, 1884a, 1884c
Snyder, 1918, 1934, 1936a
Stone, 1874b, 1876a, 1876b, 1878a, 1898b, 1879b, 1880, 1882, 1883a, 1883b, 1884b, 1885, 1897
Thomson, 1882
Titcomb, 1904, 1905a, 1905b
U.S. Fish and Wildlife Service, 1880c, 1882, 1909, 1910, 1911, 1913, 1940b
Wallis & Bond, 1950
Ward, 1939
Wilmot, 1882a, 1882b

Europe

Behr, 1883
Borne, 1885
Bottemanne, 1882, 1884
Brice, et al., 1898
Chamberlain, 1907
Clemens, 1953
Davison & Hutchinson, 1937
De Bellesme, 1896
Eigenmann, 1890
Maslicurat-Lagemard, 1884
McDonald, 1893
O'Malley, 1924
Ravenel, 1896a, 1896b, 1898, 1899, 1900, 1901
Raveret-Wattel, 1885a, 1885b
Raveret-Wattel & Barrett, 1883
Smith, 1907
Stone, 1876b, 1878a, 1878b, 1879b, 1880, 1892
Titcomb, 1905b
U.S. Fish and Wildlife Service, 1878, 1880, 1887
Young, 1948, 1949

Australia and Tasmania

Anon., 1949b

Australia and Tasmania (cont.)

Brice, et al., 1898
Clemens, 1953
Davidson & Hutchinson, 1937, 1940
Eigenmann, 1890
Smiley, 1884b, 1885, 1887a
Stone, 1879b, 1882, 1897
Titcomb, 1905a
U.S. Fish and Wildlife Service, 1880a
Wilson, 1878

EGG COUNTS

The following references contain data on the number of eggs produced by salmon. The references are arranged geographically.

Siberia

Kuznetsov, 1928

Alaska,

Bower, 1938a
Gilbert & Rich, 1929
Higgins, 1940
Holmes, 1934
Moser, 1902

British Columbia

Aro, 1952
Aro & Broadhead, 1950
Brett & McConnell, 1950
Foerster, 1929a, 1932, 1936a, 1938a,
1955
Foerster & Pritchard, 1936, 1941
Hunter, 1948, 1949b
Neave, 1947, 1953
Pritchard, 1931a, 1939b, 1948b
Scattergood, 1949
Wickett, 1951
Zithler, 1950

Washington

Rich, 1926, 1940b
Scattergood, 1949

California

Bean, 1892
Bryant, 1923
Hanson, 1940
Hanson, et al., 1940
McGregor, 1922b, 1923a, 1923b
Moffett & Smith, 1950
Rich, 1926, 1940b
Smiley, 1887a
Snyder, 1921a

RELATIVE ABUNDANCE

To aid in ascertaining the relative abundance of the various species of salmon, with respect to region, time, and to each other, data on this topic are arranged both by species and geographically. Examination of the annotated bibliography will indicate whether the data are in the form of catch records, or as counts of migrant adults. It is to be emphasized that the many statistical journals and records have not been abstracted and consequently, the references below form only a portion of the data available on this topic.

Japan

International North Pacific Fisheries
Commission, 1955
Sano & Kobayashi, 1953b
U.S. Foreign Economic Administration, 1945

Siberia

International North Pacific Fisheries
Commission, 1955
Kuznetsov, 1928

Alaska

Anon., 1915b, 1931a
Atkinson, 1955
Edson, et al., 1955
Hutchinson, 1944
Hutchinson & Shuman, 1942
Moser, 1899, 1902
Parker, et al., 1952, 1953
Rich, 1935c
Rich & Ball, 1929b, 1931, 1935
U.S. Fish and Wildlife Service,
1931-1940
Vaughan, 1942

British Columbia

Andrekson, 1950b
Anon., 1942a, 1949a, 1949c, 1952,
1953a, 1953c, 1954, 1955c
Aro, 1952
Babcock, 1910

British Columbia (cont.)

Carl, 1939
Foerster, 1929a, 1941, 1942,
1943, 1944a, 1945, 1947a, 1948
1950, 1951b
Foerster & Ricker, 1953
Godfrey, et al., 1954
Hunter, 1948, 1949a, 1951
Milne, 1952
Milne & Pritchard, 1948
Neave, 1939, 1947, 1951
Pritchard, 1940c, 1943c, 1949
Robertson, 1949
Rounsefell & Kelez, 1940
Royal, 1951
Wickett, 1951
Withler, 1950, 1952b

Washington

Anon., 1903b, 1938a
Bryant & Parkhurst, 1950
Chapman, 1940b
Ellis, et al., 1937
Gangmark & Fulton, 1952
Holmes, 1940
Johnson, et al., 1948
Kauffman, 1951
Newcomb & Matheson, 1946
Pressey, 1953
Rich, 1940b, 1941, 1942, 1943
Rounsefell & Kelez, 1940
Silliman, 194Ca
Smoker, 1953, 1954

Washington (cont.)

U.S. Fish and Wildlife Service, 1924,
1938-1940
Washington, State of, 1935-1945

Oregon

Gharrett & Hodges, 1950
Henry, 1953
Oregon Fish Commission, 1941, 1943, 1949
Mathisen, 1950
McKernan, et al., 1950
Morgon & Cleaver, 1954
Schoning, et al., 1951
Van Hynning, 1951

California

Anon., 1879, 1880
California Bureau of Marine
Fisheries, 1929-1952
California, State of, 1874-1875, 1876-
1877, 1900, 1902-1952, 1952-1954
Fry & Hughes, 1951
Hanson, 1940
Hanson, et al., 1940
Marine Fisheries Branch (Staff), 1954
Needham, et al., 1943
Needham, et al., 1941

California (cont.)

Smiley, 1884d
Snyder, 1931
Van Cleve, 1942-1944

Pacific Coast

Milne, 1913
Smith, 1895b
Wilcox, 1898

New Zealand

Hefford, 1929, 1930, 1931, 1932,
1934a, 1934b, 1935, 1936, 1938,
1940, 1941, 1946
Hobbs, 1937

Oncorhynchus gorbuscha (Walbaum), commonly called the pink or humpback salmon, is distributed throughout the North Pacific Ocean from Japan to California. It enters the Arctic Ocean along both the Siberian and American Coasts. Of the references abstracted, "pink" is by far the more common vernacular applied to this species.

DESCRIPTION - COUNTS AND MEASUREMENTS

The following papers present descriptive matter on the pink salmon and/or counts and measurements of any of its systematic characteristics.

Bean, 1887b	Hubbs, 1946
Berg, 1948	Jordan, 1896c, 1904a, 1907
Bigelow & Welsh, 1925	Jordan & Evermann, 1896
Brice, et al., 1898	Jordan & Gilbert, 1882
Carl & Clemens, 1948	Lockington, 1880
Chamberlain, 1907	O'Malley, 1920a
Clemens, 1935b, 1946b	Oshima, 1934
Crawford, 1925	Pritchard, 1944a, 1945a
Davidson, 1935	Shapovalov, 1947
Davidson & Shostrom, 1936	Snyder, 1931
Eigenmann, 1890	Stone, 1897
Evermann, 1905	Suckley, 1862, 1874
Foerster, 1935	Taft, 1938b
Foerster & Pritchard, 1935	Tchernavin, 1936--
Gilbert, 1895	Williamson, 1927
Hikita, 1953	

FIGURES AND ILLUSTRATIONS

The following references contain drawings and/or illustrations of the pink salmon, showing enough detail so as to be useful in systematic analysis.

Bean, 1891	Davidson & Shostrom, 1936
Berg, 1948	Earp & Schwab, 1954
Bigelow & Welsh, 1925	Evermann & Goldsborough, 1907b
Brice, et al., 1898	Foerster & Pritchard, 1935
California, State of, 1904	Hikita, 1953
Carl & Clemens, 1948	Jones, 1915
Chamberlain, 1907	Jordan, 1884, 1896c
Clemens, 1946b	Jordan & Evermann, 1896
Cobb, 1917	Marr, 1944
Collins, 1892	Milne, 1913
Crawford, 1925	Moser, 1899
Davidson, 1935	Nomura, 1953

O'Malley, 1920a
Oshima, 1934
Roedel, 1948
San & Kobayashi, 1953b

Shapovalov, 1947
Smedley, 1952
Stone, 1897
Williamson, 1927

LIFE COLORS

Often natural populations of fishes have distinctive color patterns.

To aid in racial analysis, an attempt was made to isolate data on life colors. The following references contain statements referring to the color of the pink salmon:

Babcock, 1931a
Bean, 1891, 1894
Berg, 1948
Brice, et al., 1898
Briggs, 1953
Carl & Clemens, 1948
Chamberlain, 1907
Clemens, 1935b, 1946b
Cobb, 1911, 1917, 1921
Crawford, 1925
Eigenmann, 1890
Evermann, 1905
Foerster, 1935
Foerster & Pritchard, 1935
Gilbert & O'Malley, 1921

Jordan, 1892, 1896c, 1904a, 1907
Jordan & Evermann, 1896
Jordan & Gilbert, 1882, 1887
Lockington, 1880
Marsh & Cobb, 1908
O'Malley, 1920a
Oshima, 1934
Pritchard, 1944a
Roedel, 1948, 1953
Rutter, 1904b
Shapovalov, 1947
Snyder, 1931
Suckley, 1874
Taft, 1938b
Williamson, 1927

RELATIONSHIPS

The following references contain data on the relationships of pink salmon to other species. Distinctions employed in keys are included in this category.

Babcock, 1931a
Berg, 1948
Chamberlain, 1907
Clemens, 1935b, 1946b
Foerster & Pritchard, 1935
Girard, 1857
Hoar, 1951a

Jordan & Evermann, 1896
Jordan & Gilbert, 1882
Kobayasi, 1955
Nomura, 1953
Schultz, 1934
Shapovalov, 1947
Snyder, 1931
Tchernavin, 1936-

RACIAL ANALYSIS

The following papers contain comments or data upon the races or populations of the pink salmon:

Babcock, 1931a
Bower, 1933, 1934
Chamberlain, 1907

Chamberlain & Bower, 1913
Clemens, 1952
Davidson & Shostrom, 1936

Evermann & Goldsborough, 1907b
 Fraser, 1921
 Gilbert, 1913b, 1924c
 Gilbert & Rich, 1929
 Higgins, 1932
 International North Pacific Fisheries
 Commission, 1955
 Jensen, 1953
 Jordan, 1904b
 Kirkness, et al., 1953
 Marr, 1944
 McConnell & Brett, 1946
 Milne, 1955

Moser, 1899
 Parker & Kirkness, 1951
 Pritchard, 1945a
 Rathbun, 1900
 Rich, 1925a
 Rich & Ball, 1929b
 Scheer, 1939
 Verhoeven, 1952
 Williamson, 1927

ANATOMY AND PHYSIOLOGY

Included within this category are references concerning the anatomy, histology, osteology (including sub-fossil finds) and physiology of the pink salmon.

Black, 1951b
 Brett, 1952b
 Cobb, 1921
 Coker, 1922
 Davidson & Shostrom, 1936
 Hoar, 1951c, 1953

Jordan, 1904a
 Kendall, 1922
 Nomura, 1953 Powers, 1939
 Reagan, 1917
 Smith, 1916
 Tchernavin, 1938

BIOCHEMISTRY

Data on the biochemistry of the pink salmon are presented in the following papers:

Bailey, 1952
 Brocklesby, 1933, 1940
 Brocklesby & Denstedt, 1933
 Fallera, 1926

Jarvis, et al., 1926
 Ney, et al., 1950
 Pugsley, 1942
 Riddell, 1936b

SEX RATIOS

Data on the sex ratios of pink salmon are presented in the following papers:

Chamberlain, 1907
 Gibson, 1930, 1931
 Gilbert, 1914a, 1924c

Marr, 1944
 Snyder, 1931
 Stone, 1929a

TIME OF SPAWNING MIGRATION

Data on the time of return of pink salmon from the ocean to the stream mouths are contained in the following references:

Atkinson, 1955	Hanavan & Skud, 1954
Babcock, 1916, 1931a	Hutchinson, 1944
Brice, 1898	Jordan & Starks, 1896
Briggs, 1953	McHugh, 1915
Chamberlain, 1907	Neave, 1949
Cobb & Kutchin, 1907	Pritchard, 1932, 1936, 1941, 1944
Davidson & Hutchinson, 1942	Rounsefell & Kelez, 1940
Davidson & Vaughan, 1941	Stone, 1878
Davidson, et al., 1943	Thompson, 1931
Gilbert, 1895, 1924	

Data on the time fish are observed migrating upstream at any point in its course are contained in the following references:

Anon., 1938c, 1942b	Foskett, 1947
Aro, 1952	Fraser, 1919
Babcock, 1903, 1910, 1914, 1916	Gibson, 1923
Bean, 1887b, 1891, 1894	Godfrey, et al., 1954
Berg, 1948	Handa, 1934
Bigelow & Welsh, 1925	Hunter, 1948, 1949a
Bower, 1922, 1923, 1925b, 1927, 1929a, 1930, 1932, 1933, 1934, 1935, 1936, 1938a, 1940	Hutchinson, 1944
Bower & Aller, 1915, 1917a, 1917b	International North Pacific Fisheries Commission, 1955
Bower & Fassett, 1914	Jordan, 1884, 1892, 1896c, 1904a
Bowers, 1899	Jordan & Evermann, 1896
Bowser, 1909	Jordan & Gilbert, 1887
Brett & Pritchard, 1946	Jordan & Starks, 1896b
Brice, et al., 1898	Kirkness, et al., 1952, 1953
California, State of, 1952-1954	Leach, 1926, 1932
Carl & Clemens, 1948	Marr, 1944
Chamberlain, 1907	Marsh & Cobb, 1908, 1910
Chamberlain & Bower, 1913	McDonald, 1894a
Clemens, 1946b	Milne, 1950b, 1955
Cobb, 1911, 1917, 1921	Milne, 1913
Coker, 1922	Moser, 1899
Collins, 1892	Neave, 1953
Crawford, 1908	Novisoff, 1912
Davidson, 1940a, 1940b	O'Malley, 1920a
Davidson & Christey, 1940	Parker & Kirkness, 1951
Davidson & Vaughan, 1939a, 1941	Popov, 1933
Davidson, et al., 1943	Pritchard, 1931a, 1937a, 1940b
Dymond, 1940	Radcliffe, 1920
Evermann, 1905	Rathbun, 1894, 1900
Evermann & Goldsborough, 1907b	Rich & Ball, 1929b
Foerster, 1935, 1955	Rutter, 1904b, 1908
Foerster & Pritchard, 1935	Shapovalov & Taft, 1954
	Smedley, 1952

Smith, 1895b
Smoker, 1954
Snyder, 1931
Stone, 1878c, 1897
Suckley, 1874
Tokahisa & Takeshi, 1934
U.S. Fish and Wildlife Service, 1945
U.S. Foreign Economic Administration, 1945
Vaughan, 1947
Wilcox, 1898
Williamson, 1927
Wynne-Edwards, 1947a

SIZE AT TIME OF RETURN

Data on the size of pink salmon at time of return are contained
in the following references:

Anon., 1928	Moser, 1899
Aro, 1952	Neave, 1949
Baievsky, 1926	Novisoff, 1912
Bean, 1887b, 1894	O'Malley, 1920a
Brice, et al., 1898	Parker & Kirkness, 1951
Briggs, 1953	Pressey, 1953
Clemens, 1935b, 1946b	Fritchard, 1932a, 1937c
Cobb, 1911, 1917	Radcliffe, 1920
Coker, 1922	Rathbun, 1900
Collins, 1892	Rutter, 1904b
Davidson & Vaughan, 1941	Scheer, 1939
Evermann, 1905	Scofield, 1916
Evermann & Goldsborough, 1907b	Shapovalov & Taft, 1954
Foerster, 1955	Smedley, 1952
Foerster & Fritchard, 1941	Smith, 1895b, 1920
Fraser, 1919, 1921	Snyder, 1931
Gilbert, 1913b, 1914a, 1924c	Stone, 1878c, 1897
Godfrey, et al., 1954	Suckley, 1874
Jordan, 1884, 1892,	Taft, 1838b
Jordan & Evermann, 1896	Tanner, et al., 1890
Jordan & Gilbert, 1887	U.S. Fish and Wildlife Service, 1945
Jordan & Starks, 1896b	Wales & Coots, 1955
Kirkness, et al., 1952, 1953	Williamson, 1927
Marsh & Cobb, 1910	

AGE AT TIME OF RETURN

Data on the age of pink salmon at time of return are contained in the following references:

- | | |
|--|--|
| Anon., 1937, 1951c, 1953c, 1954, 1955c | International North Pacific Fisheries Commission, 1955 |
| Babcock, 1908, 1931a | |
| Bean, 1891 | Jordan, 1896c, 1904a |
| Berg, 1948 | Kirkness, et al., 1952, 1953 |
| Bower, 1933 | Milne, 1955 |
| Bower & Aller, 1917a | Milne, 1913 |
| Briggs, 1953 | Neave, 1948, 1949, 1953 |
| Carl & Clemens, 1948 | O'Malley, 1920a |
| Chamberlain, 1907 | Oshima, 1934 |
| Clemens, 1935b, 1938b, 1946b, 1952 | Parker & Kirkness, 1951 |
| Cobb, 1917 | Pressey, 1953 |
| Davidson, 1940a, 1940b | Pritchard, 1932a, 1932d, 1937b, 1937c, |
| Davidson & Hutchinson, 1942 | 1938a, 1939a, 1940b, 1943b, 1948a |
| Davidson & Shostrom, 1936 | Rich, 1948 |
| Davidson & Vaughan, 1939b, 1941 | Ricker, 1954 |
| Davidson, et al., 1943 | Rounsefell & Kalez, 1940 |
| Eigenmann, 1890 | Rutter, 1904b |
| Foerster, 1935, 1943, 1949, 1955 | Scheer, 1939 |
| Foerster & Pritchard, 1935 | Shapovalov & Taft, 1954 |
| Fraser, 1919, 1921 | Smedley, 1952 |
| Gilbert, 1913b, 1914a, 1924c | Smoker, 1954 |
| Gilbert & Rich, 1929 | Snyder, 1931 |
| Godfrey, et al., 1954 | U.S. Fish and Wildlife Service, 1945 |
| Higgins, 1932 | Vaughan, 1947 |
| Hoar, 1951 | |

TYPE OF SPAWNING STREAM

Data on the nature of the spawning stream chosen by the pink salmon are contained in the following references:

- | | |
|-----------------------------|-------------------------------|
| Anon., 1904a, 1937, | Jordan, 1904a |
| Babcock, 1931a | Jordan & Evermann, 1896 |
| Bean, 1891, 1894 | Jordan & Gilbert, 1887 |
| Brice, et al., 1898 | Kirkness, et al., 1952 |
| Chamberlain, 1907 | McDonald, 1894a |
| Clemens, 1946b, 1951, 1953 | Neave, 1949 |
| Davidson & Hutchinson, 1942 | Neave & Wickett, 1953 |
| Davidson & Vaughan, 1941 | O'Malley, 1920a |
| Davidson, et al., 1943 | Pritchard, 1934e, 1940b, 1949 |
| Evermann, 1905 | Rathbun, 1900 |
| Foerster, 1935 | Rich, 1948 |
| Foerster & Pritchard, 1935 | Rutter, 1904b |
| Hanavan & Skud, 1954 | Scheer, 1939 |
| Hutchinson & Shuman, 1942 | Synne-Edwards, 1947a |

DISTANCE TRAVELED UPSTREAM

The following references mention the distance traveled upstream by

pink salmon:

Babcock, 1931a	Jordan, 1884, 1892, 1896c, 1904a
Bean, 1887b, 1891, 1894	Jordan & Evermann, 1896
Brice, et al., 1898	Jordan & Gilbert, 1887
Carl & Clemens, 1948	Neave, 1953
Clemens, 1935b, 1953	O'Malley, 1920a
Davidson & Christey, 1940	Pritchard, 1936a
Davidson & Hutchinson, 1942	Scheer, 1939
Davidson, et al., 1943	Smith, 1895b
Evermann, 1905	Stone, 1878c
Evermann & Goldsborough, 1907b	Suckley, 1874
Foerster & Pritchard, 1935	Wynne-Edwards, 1947a, 1952
Gilbert, 1924c	
Gilbert & O'Malley, 1921	
International North Pacific Fisheries Commission, 1955	

NATURE OF SPAWNING SITE

Notes regarding the nature of the spawning site of pink salmon are contained in the following references:

Anon., 1954	Hanavan & Skud, 1954
Bower, 1925b	Jordan, 1896c, 1904a, 1892
Briggs, 1953	Jordan & Evermann, 1896
Chamberlain, 1907	Moser, 1899
Crawford, 1908	O'Malley, 1920a
Davidson & Hutchinson, 1942	Pritchard, 1940b
Davidson, et al., 1943	Rich, 1948
Evermann, 1905	Rounsefell & Kelez, 1940
Foerster, 1935	Stone, 1878c
Fokkett, 1947a	Taft, 1938b
Gilbert, 1929	U.S. Fish and Wildlife Service, 1945

SPAWNING PERIOD

Data on the spawning period of the pink salmon are contained in the following references:

Andriashev, 1955	Brett & Pritchard, 1946a
Anon., 1953c	Brice, et al., 1898
Babcock, 1914, 1916	Chamberlain, 1907
Berg, 1948	Clemens, 1946b
Birchall & Hickman, 1914	Davidson, 1940a, 1940b
Bower, 1923, 1927, 1929a	Davidson & Vaughan, 1939c, 1941

Davidson, et al., 1943
 Gibson, 1922, 1923, 1924, 1925, 1927,
 1929, 1930, 1931
 Gilbert & O'Malley, 1921
 Gilbert & Rich, 1929
 Hanavan & Skud, 1954
 Hickman & Collison, 1920
 Hubbs, 1946
 Jordan & Evermann, 1896
 Leach, 1923, 1924, 1928, 1930, 1931,
 1932
 Lockington, 1880
 Marsh & Cobb, 1907, 1908, 1911
 McConnell & Brett, 1946
 Moser, 1899

Motherwell, 1934
 Neave, 1949, 1953
 O'Malley, 1920a
 Rathbun, 1900
 Rounsefell & Kelez, 1940
 Rutter, 1904b, 1908
 Stone, 1919, 1920b, 1927b, 1929a,
 1929b, 1931b
 Stone, 1878c, 1897
 Taft, 1938b
 Wisley, 1920
 Wynne-Edwards, 1947a
 Yenatina, 1954

SEXUAL DIMORPHISM

Data on sexual dimorphism in pink salmon are mentioned in the following references:

Babcock, 1931a
 Bean, 1891, 1894
 Brett & Pritchard, 1946a, 1946b
 Brice, et al., 1898
 Briggs, 1953
 Carl & Clemens, 1948
 Chamberlain, 1907
 Clemens, 1946b
 Davidson, 1935
 Davidson & Vaughan, 1941
 Davidson, et al., 1943
 Evermann & Goldsborough, 1907b
 Gilbert, 1924c

Gilbert & O'Malley, 1921
 Jordan, 1892, 1896c, 1904a, 1907
 Jordan & Evermann, 1896
 Jordan & Gilbert, 1887
 Lockington, 1880
 Marr, 1944
 O'Malley, 1920a
 Pritchard, 1937a
 Rutter, 1904b
 Shapovalov, 1947
 Shapovalov & Taft, 1954
 Stone, 1878c, 1897
 Suckley, 1874
 Taft, 1938b

SPAWNING BEHAVIOR

Data on the spawning behavior of pink salmon are contained in the following references:

Anon., 1953c
 Babcock, 1931a
 Bean, 1894
 Berg, 1948
 Bower, 1923
 Brice, et al., 1898
 Briggs, 1953
 Chamberlain, 1907
 Crawford, 1908
 Evermann, 1905

Foerster, 1935
 Jordan, 1892, 1896c
 Jordan & Evermann, 1896
 Jordan & Gilbert, 1887
 Moser, 1899
 Rutter, 1904b
 Shapovalov & Taft, 1954

POST-SPAWNING BEHAVIOR

Data on the post-spawning behavior of pink salmon are noted in the following references:

Bean, 1891, 1894
Brice, et al.,
Briggs, 1953
Gilbert, 1914a
Jordan, 1892, 1896c, 1904a

Jordan & Evermann, 1896
Oshima, 1934
Rathbun, 1900
Rutter, 1904b
Stone, 1878c, 1897

DATE EGGS HATCH

Data on the time of hatching of the pink salmon are included in the following references:

Carl & Clemens, 1948
Crawford, 1908
Davidson, 1940a
Davidson & Vaughan, 1939b
Foerster & Pritchard, 1935
Hanavan & Skud, 1954
International North Pacific Fisheries
Commission, 1955
Jordan, 1896c

Jordan & Evermann, 1896
Marsh & Cobb, 1910
Pritchard, 1944a
Rich, 1948
U.S. Fish and Wildlife Service, 1945
Vaughan, 1947
Williamson, 1927

BEHAVIOR OF FRY AND FINGERLINGS

Data on the behavior of the fry and fingerlings of pink salmon are included in the following references:

Anon., 1953c, 1954
Black, 1951b
Chamberlain, 1907
Clemens, 1951, 1953
Davidson & Vaughan, 1941
Foerster, 1955
Fraser, 1919
Hoar, 1951a, 1953, 1954
MacKimon & Brett, 1955

Moser, 1899
Neave, 1955
Pritchard, 1940b, 1944a
Rich, 1948
Rutter, 1904b
Shapovalov & Taft, 1954
Stone, 1897
Jales & Coot, 1955a

TIME YOUNG SPEND IN FRESHWATER

Data on the time spent in freshwater by the young pink salmon are contained in the following references:

- | | |
|---|--------------------------------------|
| Anon., 1948, 1951c, 1952 | Hourston, et al., 1955 |
| Babcock, 1908, 1931a | Hunter, 1949a |
| Bean, 1894 | Hubbs, 1946 |
| Bower, 1934 | MacKimon & Brett, 1955 |
| Carl & Clemens, 1948 | Milne, 1913 |
| Chamberlain, 1907 | Neave, 1948, 1949 |
| Clemens, 1935b, 1946b, 1951, 1952, 1953 | Neave & Wickett, 1953 |
| Cobb, 1921 | O'Malley, 1920a |
| Davidson & Vaughan, 1939b, 1941 | Oshima, 1934 |
| Davis, 1953 | Parker & Kirkness, 1951 |
| Earp, et al., 1953 | Pritchard, 1939a, 1940b |
| Foerster & Pritchard, 1935 | Rich, 1948 |
| Fraser, 1919 | Ricker, 1954 |
| Gilbert, 1913b, 1914a, 1924c | Rutter, 1904b, 1908 |
| Gilbert & Rich, 1929 | Scheer, 1939 |
| Handa, 1934 | Shapovalov & Taft, 1954 |
| Higgins, 1932 | Smoker, 1954 |
| Hoar, 1951a | U S. Fish and Wildlife Service, 1945 |
| | Wales & Coots, 1955a |

DATE OF SEAWARD MIGRATION

Statements on the date of seaward migration of young pink salmon are contained in the following references:

- | | |
|-----------------------------|--|
| Bean, 1894 | International North Pacific Fisheries Commission, 1955 |
| Bower, 1925b, 1938a | MacKimon & Brett, 1955 |
| Bower & Fassett, 1914 | Marr, 1944 |
| Brett & Mackinnon, 1953 | Neave, 1947, 1948, 1953 |
| Brett & Pritchard, 1946 | Oshima, 1934 |
| Chamberlain, 1907 | Parker, et al., 1953 |
| Clemens, 1951 | Pritchard, 1931a, 1936c, 1937a, 1940b, 1944a, 1944c |
| Davidson, 1940b | Rich, 1948 |
| Davidson & Hutchinson, 1942 | Rounsefell & Kelez, 1940 |
| Davidson & Vaughan, 1941 | Rutter, 1904b |
| Foerster & Pritchard, 1935 | Shapovalov & Taft, 1954 |
| Fraser, 1919 | Snyder, 1931 |
| Gilbert, 1914a | Vaughan, 1947 |
| Gilbert & Rich, 1929 | Wales & Coots, 1955a |
| Hoar, 1951a | |
| Hubbs, 1946 | |

SIZE AT TIME OF SEAWARD MIGRATION

Data on the size of young pink salmon at the time of seaward migration are contained in the following references:

Babcock, 1903	Gilbert, 1913b
Chamberlain, 1907	Hourston, et al., 1955
Chamberlain & Bower, 1913	Milne, 1913
Davidson & Vaughan, 1941	Pritchard, 1936a, 1936c, 1948b
Foerster & Pritchard, 1935	Rich, 1948
Fraser, 1919	Rounsefell & Kelez, 1940

MOVEMENTS IN THE OCEAN

Data on the movements in the ocean of the pink salmon are contained in the following references:

Anon., 1953b	Jordan, 1896c, 1904a, 1904b
Babcock, 1903, 1914, 1931a	Jordan & Evermann, 1896
Barnaby, 1952	Neave, 1953
Bean, 1891, 1894	Pritchard, 1944c, 1948a
Chamberlain, 1907	Rathbun, 1900
Clemens, 1935b	Rich, 1925a, 1935c, 1939
Cobb, 1917, 1921	Rounsefell & Kelez, 1940
Davidson, 1940c	Rutter, 1904b
Davidson & Hutchinson, 1940	Scheer, 1939
Davidson & Vaughan, 1941	Shapovalov & Taft, 1954
Gilbert, 1895	Snyder, 1931
Hoar, 1953	Verhoeven, 1952
Hubbs, 1946	Williamson, 1927
International North Pacific Fisheries Commission, 1955	

MARKING OR TAGGING AND RECAPTURE DATA

Data on marking or tagging and recapture of pink salmon are contained in the following references:

Anon., 1929b, 1937, 1951c, 1952, 1953c, 1954	Davidson & Vaughan, 1939c
Babcock, 1914	DeLacy & Neave, 1947
Brett & Pritchard, 1946b	Elling & Macy, 1955
California, State of, 1904, 1952-1954	Foerster, 1941, 1942, 1943, 1944a, 1945, 1946a, 1947a, 1948, 1949
Chamberlain, 1907	Godfrey, et al., 1954
Clemens, 1937, 1939c	Higgins, 1929
Clemens, et al., 1939	Hunter, 1951
Coker, 1922	International North Pacific Fisheries Commission, 1955
Davidson, 1940b	
Davidson & Christey, 1940	Jensen, 1953

Jordan, 1892, 1896c, 1904b
 Kirkness, et al., 1952, 1953
 Marsh & Cobb, 1907, 1908, 1911
 Milne, 1955
 Parker & Kirkness, 1951
 Powers, 1939
 Pritchard, 1930, 1931d, 1932a, 1932b,
 1932d, 1934d, 1934e, 1937b, 1938b,
 1939a, 1940b, 1941, 1943b, 1944a,
 1944c
 Pritchard & DeLacy, 1944b
 Rich, 1925a, 1927, 1935a, 1935c, 1939

Rich & Morton, 1930
 Rich & Suomela, 1929a
 Rounsefell & Kelez, 1940
 Rutter, 1904b
 Sano & Kobayashi, 1953b
 Scheer, 1939
 Snyder, 1931
 Williamson, 1927

HOMING INSTINCT

Discussions or data concerning the homing instinct in pink salmon
 are contained in the following references:

Anon., 1937
 Babcock, 1931a
 Chamberlain, 1907
 Clemens, 1937, 1938b, 1939c, 1951,
 1953
 Davidson, 1940b
 Davidson & Vaughan, 1939b, 1941
 Foerster, 1941
 Fraser, 1919
 International North Pacific Fisheries
 Commission, 1955
 Jordan, 1892, 1896c, 1904b
 Jordan & Gilbert, 1887

Marsh & Cobb, 1911
 Powers, 1939
 Pritchard, 1932d, 1934a, 1937b, 1939a,
 1940b, 1941, 1943b, 1944c, 1948a
 Rich, 1939, 1948
 Rich & Ball, 1931
 Rounsefell & Kelez, 1940
 Rutter, 1904b
 Scheer, 1939
 Shapovalov, 1940
 Shapovalov & Taft, 1954
 U.S. Fish and Wildlife Service, 1945
 Verhoeven, 1952

GROWTH RATES

Remarks on the growth rates of pink salmon are included in the following
 references:

Berg, 1948
 Chamberlain, 1907
 Davidson & Vaughan, 1941
 Fraser, 1919, 1921
 Hubbs, 1946

International North Pacific Fisheries
 Commission, 1955
 Marr, 1944
 Parker & Kirkness, 1951
 Rounsefell & Kelez, 1940

FOOD AND FEEDING HABITS

Data concerning the food and/or feeding habits of pink salmon are contained in the following references:

- | | |
|---|--------------------------------------|
| Anon., 1952, 1953b, 1953c, 1955c | Maeda, 1955 |
| Babcock, 1931a | Marsh & Cobb, 1908 |
| Barnaby, 1952 | Nakai & Honjo, 1954 |
| Bean, 1891, 1894 | Pritchard, 1936c |
| Carl & Clemens, 1948 | Rich, 1948 |
| Clemens, 1935b, 1940b, 1951, 1953 | Ricker, 1954 |
| Cobb, 1917, 1921 | Rounsefell & Kelez, 1940 |
| Davidson & Vaughan, 1941 | Senter, 1940 |
| Einarsen, 1927 | Smith, 1895b |
| Fish, 1939 | Stone, 1878c, 1897 |
| Foerster, 1941, 1942, 1955 | Thompson, 1931 |
| Foskett, 1951b | U.S. Fish and Wildlife Service, 1945 |
| Fraser, 1919 | Williamson, 1927 |
| Gilbert, 1913b, 1914a | Withler, 1948 |
| International North Pacific Fisheries
Commission, 1955 | |

PARASITES AND DISEASES

Parasites and diseases infecting the pink salmon are reported by:

- | | |
|---------------------|---------------------------|
| Bean, 1891 | Guberlet, 1936 |
| Clemens, 1939 | Jordan, 1892, 1896c, 1904 |
| Davis, 1953 | Kobayashi, 1934 |
| Earp & Schwab, 1954 | Nishino, 1953 |
| Earp, et al., 1953 | Shapovalov & Taft, 1954 |
| Eguchi, 1934 | Ward, 1908 |
| Fallera, 1926 | |
| Fish, 1939 | |

INTRODUCTIONS AND ACCLIMATIZATION

For data on the introduction and acclimatization of pink salmon into various exotic waters, see subject section under this category.

EGG COUNTS

The following references contain data on the number of eggs produced

by pink salmon:

Aro, 1952	Hunter, 1948
Bower, 1938a	Neave, 1953
Foerster, 1955	Pritchard, 1931a, 1939b, 1948b
Foerster & Pritchard, 1936, 1941	

RELATIVE ABUNDANCE

Material on the relative abundance of pink salmon is contained in the following references. Examination of the specific entries will indicate whether the data are in the form of catch records or as counts of migrant adults.

Anon., 1915b, 1931a, 1949a, 1954, 1952, 1942a, 1942c, 1955c	Parker, et al., 1953
Aro, 1952	Pressey, 1953
Atkinson, 1955	Pritchard, 1940c, 1949
Babcock, 1910	Rich, 1935c
California, State of, 1902-1952, 1952-1954	Rich & Ball, 1929b, 1931, 1935
Ellis, et al., 1937	Robertson, 1949
Foerster, 1941, 1942, 1943, 1944a, 1945, 1947a, 1948, 1950	Rounsefell & Kelez, 1940
Godfrey, et al., 1954	Sano & Kobayashi, 1953b
Hunter, 1948, 1949a, 1951	Smith, 1895b
Hutchinson, 1944	Smoker, 1954
Hutchinson & Shuman, 1942	Snyder, 1931
International North Pacific Fisheries Commission, 1955	U.S. Fish and Wildlife Service, 1931-1940
	U.S. Foreign Economic Administration, 1945
Milne, 1913	Vaughan, 1942
Moser, 1899	Washington, State of, 1935-1945
Neave, 1947	Wilcox, 1898

Oncorhynchus keta (Walbaum), commonly called the chum or dog salmon, is distributed throughout the North Pacific Ocean from Japan to California. It enters the Arctic Ocean along both the Siberian and American Coasts. Of the references abstracted, the vernaculars "chum" and "dog" appear to be about equally employed.

DESCRIPTION - COUNTS AND MEASUREMENTS

The following papers present descriptive matter on the chum salmon and/or counts and measurements of any of its systematic characteristics.

Bean, 1887b	Jordan, 1896c, 1904a, 1907
Berg, 1948	Jordan & Evermann, 1896
Brice, et al., 1898	Jordan & Gilbert, 1882
Carl & Clemens, 1948	Kubo, 1947, 1949, 1950
Chamberlain, 1907	Kubo & Kobayashi, 1953
Crawford, 1925	Lockington, 1880
Davidson & Shostrom, 1936	Milne, 1913
Eigenmann, 1890	O'Malley, 1920a
Evermann, 1905	Oshima, 1934
Foerster, 1935	Rathbun, 1900
Foerster & Pritchard, 1935	Sano, 1951
Gilbert & Evermann, 1895	Shapovalov, 1947
Grigo, 1953	Snyder, 1931
Hikita, 1953, 1955	Stone, 1897
Honma & Murakawa, 1955	Suckley, 1874
Hubbs, 1946	Tchernavin, 1938-1940.
Hunter, 1949b	

FIGURES AND ILLUSTRATIONS

The following references contain drawings and/or illustrations of the chum salmon:

Bean, 1891	Honma & Murakawa, 1955
Berg, 1948	Jordan, 1884, 1896c
Brice, et al., 1898	Jordan & Evermann, 1896
California, State of, 1904	Jones, 1915
Carl & Clemens, 1948	Marr, 1944
Chamberlain, 1907	Milne, 1913
Cobb, 1917	Moser, 1899
Collins, 1892	Nomura, 1953
Crawford, 1925	O'Malley, 1920a
Davidson & Shostrom, 1936	Oshima, 1934
Earp & Schwab, 1954	Riedel, 1948
Evermann & Goldsborough, 1907b	Scofield, 1900
Foerster & Pritchard, 1935	Shapovalov, 1947
Hikita, 1953, 1955	Stone, 1897
	Wilcox, 1902

LIFE COLORS

Often natural populations of fishes have distinctive color patterns. To aid in racial analysis, an attempt was made to isolate data on life colors. The following references contain statements referring to the color of the chum salmon:

Babcock, 1931a	Hunter, 1949b
Bean, 1891, 1894	Jordan, 1896c, 1904a, 1907
Berg, 1948	Jordan & Evermann, 1896
Brice, et al., 1898	Jordan & Gilbert, 1882, 1887
Briggs, 1953	Locke, 1929
Carl & Clemens, 1948	Lockington, 1880
Chamberlain, 1907	Marsh & Cobb, 1908
Cobb, 1911, 1917, 1921	O'Malley, 1920a
Crawford, 1925	Oshima, 1934
Eigenmann, 1890	Ricker, 1940
Evermann, 1905	Roedel, 1949, 1953a
Foerster, 1935	Rutter, 1904b
Foerster & Pritchard, 1935	Shapovalov, 1947
Gilbert & O'Malley, 1921	Snyder, 1931
Hikita, 1955	Suckley, 1874

RELATIONSHIPS

The following references contain data on the relationships of chum salmon to other species. Distinctions employed in keys are included in this category.

Babcock, 1931a	Kobayasi, 1955
Berg, 1943	Locke, 1929
Burner, 1951	Momura, 1953
Chamberlain, 1907	Schultz, 1934
Foerster & Pritchard, 1935	Shapovalov, 1947
Hoar, 1951a	Snyder, 1931
Jordan & Evermann, 1896	Suckley, 1874
Jordan & Gilbert, 1882	Tchernavin, 1930

RACIAL ANALYSIS

The following papers contain comments or data upon the races or populations of the chum salmon:

Babcock, 1931a	Gilbert & Rich, 1927
Bower, 1933, 1934	Grigo, 1953
Chamberlain, 1907	International North Pacific Fisheries Commission, 1955
Chamberlain & Bower, 1913	Jordan, 1904b
Davidson & Shostrom, 1936	Kirkness, et al., 1953
Evermann & Goldsborough, 1907b	Kubo, 1950
Fraser, 1921	Kubo & Kobayashi, 1953
Gharrett & Hodges, 1950	Marr, 1944
Gilbert, 1924c	

Milne, 1955
Moser, 1899
Parker & Kirkness, 1951
Powers, 1941
Rathbun, 1900
Rich, 1925a

Rich & Ball, 1929b
Sano, 1951
Scheer, 1939
Verhoeven, 1952
Watanabe, 1955

ANATOMY AND PHYSIOLOGY

Included within this category are references concerning the anatomy, histology, osteology (including sub-fossil finds) and physiology of the chum salmon.

Anon., 1955a
Black, 1951a, 1951b
Brett, 1952b
Cobb, 1921
Coker, 1922
Davidson & Shostrom, 1936
Hoar, 1951c, 1953
Honma & Murakawa, 1955
Igarashi & Zama
Jordan, 1904a
Kobayashi & Yuki, 1954b

Nishida, 1953b, 1954, 1955
Nomura, 1953
Okada, 1954
Palmer, et al., 1954
Pentegov, et al., 1928
Potter & Hoar, 1954
Saito, 1940
Tchernavin, 1938
Tuge, 1937
Yamamoto, 1955

BIOCHEMISTRY

Data on the biochemistry of the chum salmon are presented in the following papers:

Bailey, 1952
Brocklesby, 1940
Brocklesby & Denstedt, 1933
Fallera, 1926
Jarvis, 1926

Ney, et al., 1950
Pottinger & Baldwin, 1940
Pugsley, 1942

SEX RATIOS

Data on the sex ratios of the chum salmon are presented in the following papers:

Chamberlain, 1907
Gilbert, 1914b, 1924c
Henry, 1954

Marr, 1944
Snyder, 1931
Stone, 1929a

TIME OF SPAWNING MIGRATION

Data on the time of return of chum salmon from the ocean to the stream mouths are contained in the following references:

Atkinson, 1955	Henry, 1953
Babcock, 1931a	Jordan & Starks, 1896
Brice, 1898	McHugh, 1915
Briggs, 1953	Neave, 1949
Chamberlain, 1907	Pritchard, 1932
Cobb & Kutchin, 1907	Rounsefell & Kelez, 1940
Davidson, et al., 1943	Thompson, 1931
Gilbert, 1924	

Data on the time fish are observed migrating upstream at any point in its course are contained in the following references:

Aro, 1952	Jordan & Evermann, 1896
Babcock, 1903, 1910	Jordan & Gilbert, 1887
Barin, 1887	Jordan & Starks, 1896b
Bean, 1887b, 1891, 1894	Kirkness, et al., 1952, 1953
Berg, 1948	Kuznetsov, 1928
Bower, 1923, 1925b, 1927, 1929a	Leach, 1926, 1927, 1932
1930, 1932, 1933, 1934, 1935,	Marr, 1944
1936, 1938a, 1940, 1941, 1931	Marsh & Cobb, 1908, 1910
Bower & Aller, 1915	McDonald, 1894a
Brice, et al., 1898	Milne, 1955
Bryant, 1949	Milne, 1913
Burner, 1951	Moser, 1899
Carl & Clemens, 1948	Neave, 1953
Chamberlain, 1907	O'Malley, 1920a
Chamberlain & Bower, 1913	Parker & Kirkness, 1951
Cleaver, 1951	Parkhurst, et al., 1950
Cobb, 1911, 1917, 1921	Popov, 1933
Coker, 1922	Pritchard, 1940b
Collins, 1892	Radcliffe, 1920
Crawford, 1908	Rathbun, 1894, 1900
Davidson, et al., 1943	Rich, 1942
Dymond, 1940	Rich & Ball, 1929b
Evermann, 1905	Rutter, 1904b, 1908
Evermann & Goldsborough, 1907b	Sano, 1955
Evermann & Meek, 1898	Shapovalov & Taft, 1954
Foerster, 1929a, 1935, 1955	Smoker, 1954
Foerster & Pritchard, 1935	Snyder, 1931
Fraser, 1919	Stone, 1897
Gilbert & Evermann, 1895	Suckley, 1874
Godfrey, et al., 1954	Tokahisa & Takeshi, 1934
Handa, 1934	U.S. Fish and Wildlife Service, 1945
Hunter, 1948, 1949a	Wilcox, 1898
International North Pacific Fisheries	Wynne-Edwards, 1947a
Commission, 1955	
Jordan, 1884, 1896c, 1904a	

SIZE AT TIME OF RETURN

Data on the size of chum salmon at time of return are contained in the following references:

- | | |
|--------------------------------|------------------------------------|
| Aro, 1952 | Kuznetzov, 1928 |
| Baievsky, 1926, | Locke, 1929 |
| Bean, 1887b, 1894 | Marsh & Cobb, 1910 |
| Brice, et al., 1898 | Moser, 1899 |
| Briggs, 1953 | Neave, 1949 |
| Burner, 1951 | Neave, et al., 1953 |
| Chapman, 1940a | O'Malley, 1920a |
| Cobb, 1911, 1917 | Parker & Kirkness, 1951 |
| Coker, 1922 | Pressey, 1953 |
| Collins, 1892 | Pritchard, 1932a |
| Evermann, 1905 | Radcliffe, 1920 |
| Evermann & Goldsborough, 1907b | Rathbun, 1900 |
| Evermann & Meek, 1898 | Ricker, 1940 |
| Foerster, 1929a, 1955 | Rutter, 1904b |
| Fraser, 1919, 1921 | Scheer, 1939 |
| Gilbert, 1914b, 1924c | Scofield, 1916 |
| Godfrey, et al., 1954 | Shapovalov & Taft, 1954 |
| Henry, 1954 | Snyder, 1931 |
| Hunter, 1949b | Stone, 1897 |
| Jordan, 1884 | Suckley, 1874 |
| Jordan & Evermann, 1896 | Tanner, et al., 1890 |
| Jordan & Gilbert, 1887 | US Fish and Wildlife Service, 1945 |
| Jordan & Starks, 1896b | Wales & Coots, 1955 |
| Kirkness, et al., 1952, 1953 | |

AGE AT TIME OF RETURN

Data on the age of chum salmon at time of return are contained in the following references:

- | | |
|----------------------------------|---------------------------------------|
| Anon., 1951c, 1953c, 1954, 1955c | Eigenmann, 1890 |
| Babcock, 1931a | Foerster, 1935, 1943, 1949, 1955 |
| Bean, 1891 | Foerster & Pritchard, 1935 |
| Berg, 1948 | Fraser, 1919, 1921 |
| Bower, 1933 | Gilbert, 1914b, 1924c |
| Bowser, 1913 | Godfrey, et al., 1954 |
| Briggs, 1953 | Henry, 1953, 1954 |
| Carl & Clemens, 1948 | Hoar, 1951b |
| Chamberlain, 1907 | Hunter, 1949b |
| Cleaver, 1951 | International North Pacific Fisheries |
| Clemens, 1938b | Commission, 1955 |
| Cobb, 1917 | Jordan, 1896c, 1904a |
| Davidson & Shostrom, 1936 | Kirkness, et al., 1952, 1953 |
| Davidson, et al., 1943 | Kuznetzov, 1928 |

Milne, 1955
 Milne, 1913
 Neave, 1949, 1953
 Neave, et al., 1953
 O'Malley, 1920a
 Oshima, 1934
 Parker & Kirkness, 1951
 Pressey, 1953
 Pritchard, 1932a, 1940b, 1943a

Rich, 1948
 Ricker, 1940, 1954
 Rounsefell & Kelez, 1940
 Rutter, 1904b
 Scheer, 1939
 Shapovalov & Taft, 1954
 Smoker, 1954
 Snyder, 1931
 U.S. Fish and Wildlife Service, 1945

TYPE OF SPAWNING STREAM

Data on the nature of the spawning stream chosen by the chum salmon are contained in the following references:

Anon., 1904a
 Babcock, 1931a
 Bean, 1891, 1894
 Brice, et al., 1898
 Bryant, 1949
 Burner, 1951
 Chamberlain, 1907
 Clemens, 1951, 1953
 Davidson, et al., 1943
 Evermann, 1905
 Foerster, 1935
 Foerster & Pritchard, 1935
 Gilbert, 1914b
 Jordan, 1904a

Jordan & Evermann, 1896
 Jordan & Gilbert, 1887
 Kirkness, et al., 1952
 Kuznetsov, 1928
 McDonald, 1894a
 Neave, 1949
 Neave & Wickett, 1953
 O'Malley, 1920a
 Powers, 1941
 Pritchard, 1934e, 1940b, 1949
 Rathbun, 1900
 Rich, 1948
 Rutter, 1904b
 Scheer, 1939
 Wynne-Edwards, 1947a

DISTANCE TRAVELED UPSTREAM

The following references mention the distance traveled upstream by the chum salmon:

Babcock, 1931a
 Bean, 1887b, 1891, 1894
 Brice, et al., 1898
 Bryant, 1949
 Burner, 1951
 Carl & Clemens, 1948
 Clemens, 1953
 Davidson, et al., 1943
 Evermann, 1905
 Evermann & Goldsborough, 1907b

Foerster & Pritchard, 1935
 Gilbert, 1924c
 Gilbert & Evermann, 1895
 Gilbert & O'Malley, 1921
 International North Pacific Fisheries Commission, 1955
 Jordan, 1884, 1896c, 1904a
 Jordan & Evermann, 1896
 Jordan & Gilbert, 1887
 Kuznetsov, 1928

Locke, 1929
Neave, 1953
O'Malley, 1920a

Scheer, 1939
Suckley, 1874
Wynne-Edwards, 1947a, 1952

NATURE OF SPAWNING SITE

Notes regarding the nature of the spawning site of chum salmon are contained in the following references:

Anon., 1954
Bower, 1925b
Briggs, 1953
Burner, 1951
Chamberlain, 1907
Crawford, 1908
Davidson, et al., 1943
Evermann, 1905
Foerster, 1929a, 1935
Jordan, 1896c, 1904a

Jordan & Evermann, 1896
Leach, 1922
Moser, 1899
O'Malley, 1920a
Pritchard, 1940b
Rich, 1948
Robertson, 1920
Rounsefell & Kelez, 1940
Sano, 1955
U.S. Fish and Wildlife Service, 1945

SPAWNING PERIOD

Data on the spawning period of the chum salmon are contained in the following references:

Andriashev, 1955
Anon., 1953c
Barin, 1887
Berg, 1948
Bower, 1923, 1927, 1929a
Brice, et al., 1898
Bryant, 1949
Chamberlain, 1907
Craig & Hacker, 1940
Davidson, et al., 1943
Evermann & Meek, 1898
Gilbert & O'Malley, 1921
Hickman & Collison, 1920
Hubbs, 1946
Jordan & Evermann, 1896
Kuznetsov, 1928
Leach, 1922, 1924, 1928, 1931, 1932
Locke, 1929
Lockington, 1880
Marsh & Cobb, 1907, 1908, 1911
Moser, 1899
Motherwell, 1934
Neave, 1949, 1953

O'Malley, 1920a
Rathbun, 1900
Ricker, 1940
Rounsefell & Kelez, 1940
Rutter, 1904b, 1908
Stone, 1920b, 1921a, 1922b, 1925a,
1927a, 1927b, 1929a, 1931b, 1932a
Stone, 1897
Sumner, 1953
Wynne-Edwards, 1947a

SEXUAL DIMORPHISM

Data on sexual dimorphism in chum salmon are mentioned in the following references:

- | | |
|--------------------------------|------------------------|
| Babcock, 1931a | Jordan & Gilbert, 1887 |
| Bean, 1891, 1894 | Kuznetzov, 1928 |
| Brice, et al., 1898 | Locke, 1929 |
| Briggs, 1953 | Lockington, 1880 |
| Carl & Clemens, 1948 | Marr, 1944 |
| Chamberlain, 1907 | O'Malley, 1920a |
| Davidson, et al., 1943 | Ricker, 1940 |
| Evermann & Goldsborough, 1907b | Rutter, 1904b |
| Gilbert, 1924c | Shapovalov, 1947 |
| Gilbert & O'Malley, 1921 | Shapovalov & Taft |
| Jordan, 1896c, 1904a, 1907 | Stone, 1897 |
| Jordan & Evermann, 1896 | Suckley, 1874 |

SPAWNING BEHAVIOR

Data on the spawning behavior of chum salmon are contained in the following references:

- | | |
|---------------------|-------------------------|
| Anon., 1953c | Crawford, 1908 |
| Babcock, 1931a | Evermann, 1905 |
| Bean, 1894 | Foerster, 1935 |
| Berg, 1940 | Jordan, 1896c |
| Bower, 1923 | Jordan & Evermann, 1896 |
| Brice, et al., 1898 | Jordan & Gilbert, 1887 |
| Briggs, 1953 | Moser, 1899 |
| Burner, 1951 | Rutter, 1904b |
| Chamberlain, 1907 | Shapovalov & Taft, 1954 |

POST-SPAWNING BEHAVIOR

Data on the post-spawning behavior of chum salmon are noted in the following references:

- | | |
|-----------------------|-------------------------|
| Bean, 1891, 1894 | Jordan & Evermann, 1896 |
| Brice, et al., 1898 | Locke, 1929 |
| Briggs, 1953 | Oshima, 1934 |
| Evermann & Meek, 1898 | Rathbun, 1900 |
| Jordan, 1896c, 1904a | Rutter, 1904b |
| | Stone, 1897 |

DATE EGGS HATCH

Data on the time of hatching of the chum salmon are included in the following references:

Carl & Clemens, 1948	Jordan & Evermann, 1896
Crawford, 1900	Leach, 1924
Evermann & Meek, 1898	Marsh & Cobb, 1910
Foerster & Pritchard, 1935	Rich, 1948
International North Pacific Fisheries Commission, 1955	Scofield, 1898b
Jordan, 1896c	U.S. Fish and Wildlife Service, 1945

BEHAVIOR OF FRY AND FINGERLINGS

Data on the behavior of the fry and fingerlings of chum salmon are included in the following references:

Anon., 1953c, 1954	Neave, 1955
Black, 1951b	Pritchard, 1940b
Chamberlain, 1907	Rich, 1948
Clemens, 1951, 1953	Ricker, 1940
Foerster, 1955	Robertson, 1920
Fraser, 1919	Rutter, 1904b
Hoar, 1951a, 1953, 1954	Scofield, 1898b, 1900
Kobayashi, 1953	Shapovalov & Taft, 1954
MacKimon & Brett, 1955	Stone, 1897
Moser, 1899	Wales & Coots, 1955a

TIME YOUNG SPEND IN FRESHWATER

Data on the time spent in freshwater by the young chum salmon are contained in the following references:

Anon., 1948, 1951c, 1952	Fraser, 1919
Babcock, 1931a	Gilbert, 1914b, 1924c
Bean, 1894	Handa, 1934
Bower, 1934	Henry, 1953
Bowser, 1913	Hoar, 1951a
Carl & Clemens, 1948	Hourston, et al., 1955
Chamberlain, 1907	Hubbs, 1946
Cleaver, 1951	Hunter, 1949a
Clemens, 1951, 1953	Locke, 1929
Cobb, 1921	MacKimon & Brett, 1955
Davis, 1953	Milne, 1913
Earp, et al., 1953	Neave, 1949
Evermann & Meek, 1898	Neave & Wickett, 1953
Foerster & Pritchard, 1935	O'Malley, 1920a

Oshima, 1934
Parker & Kirkness, 1951
Pritchard, 1940b, 1943a
Rich, 1948
Ricker, 1940, 1954
Rutter, 1904b, 1908

Scheer, 1939
Scofield, 1898b
Shapovalov & Taft, 1954
Smoker, 1951
U.S. Fish and Wildlife Service, 1945
Wales & Coots, 1955a

DATE OF SEAWARD MIGRATION

Statements on the date of seaward migration of young chum salmon are contained in the following references:

Bean, 1894
Bower, 1925b, 1938a
Brett & Mackinnon, 1953
Chamberlain, 1907
Clemens, 1951
Foerster & Pritchard, 1935
Fraser, 1919
Gharrett & Hodges, 1950
Hoar, 1951a
Hubbs, 1946
International North Pacific Fisheries
Commission, 1955
Johnson, et al., 1948
MacKimon & Brett, 1955

Marr, 1944
Neave, 1953
Oshima, 1934
Parker, et al., 1953
Pritchard, 1940b
Rich, 1948
Rounsefell & Kelez, 1940
Rutter, 1904b
Sano & Kobayashi, 1952, 1953a
Scofield, 1898b, 1900
Shapovalov & Taft, 1954
Snyder, 1931
Sumner, 1953
Wales & Coots, 1955a

SIZE AT TIME OF SEAWARD MIGRATION

Data on the size of young chum salmon at the time of seaward migration are contained in the following references:

Babcock, 1903
Chamberlain, 1907
Chamberlain & Bower, 1913
Foerster & Pritchard, 1935
Fraser, 1919
Gharrett & Hodges, 1950

Gilbert & Evermann, 1895
Hourston, et al., 1955
Milne, 1913
Pritchard, 1943a
Rich, 1948
Rounsefell & Kelez, 1940

MOVEMENTS IN THE OCEAN

Data on the movements in the ocean of the chum salmon are contained in the following references:

Anon., 1953b	Jordan, 1896c, 1904a, 1904b
Babcock, 1903, 1931a	Jordan & Evermann, 1896
Bean, 1891, 1894	Neave, 1953
Chamberlain, 1907	Powers, 1941
Cobb, 1917, 1921	Rathbun, 1900
Davidson, 1940c	Rich, 1925a, 1935c
Davidson & Hutchinson, 1940	Rounsefell & Kelez, 1940
Gilbert, 1914b	Rutter, 1904b
Hikita, 1955	Sano & Kobayashi, 1952
Hoar, 1953	Scheer, 1939
Hubbs, 1946	Shapovalov & Taft, 1954
International North Pacific Fisheries Commission, 1955	Snyder, 1931
	Verhoeven, 1952

MARKING OR TAGGING AND RECAPTURE DATA

Data on marking or tagging and recapture of chum salmon are contained in the following references:

Anon., 1951c, 1952, 1953c, 1954	Marsh & Cobb, 1907, 1908, 1911
Bowser, 1913	Milne, 1955
California, State of, 1904	Neave, et al., 1953
Chamberlain, 1907	Parker & Kirkness, 1951
Chatwin, 1953b	Pritchard, 1930, 1932a, 1932b, 1934e, 1940b
Clemens, 1939c	Rich, 1925a, 1927, 1935a, 1935c, 1941
Coker, 1922	Rich & Morton, 1930
Foerster, 1943, 1946a, 1947a, 1948, 1949	Rich & Suomela, 1929a
Gilbert & Rich, 1927	Rounsefell & Kelez, 1940
Godfrey, et al., 1954	Rutter, 1904b
Hunter, 1951	Sano, 1951
International North Pacific Fisheries Commission, 1955	Sano & Kobayashi, 1953a
Jordan, 1896c, 1904b	Scheer, 1939
Kirkness, et al., 1952, 1953	Snyder, 1931
	Sumner, 1953

HOMING INSTINCT

Discussions or data concerning the homing instinct in chum salmon are contained in the following references:

- | | |
|---|--------------------------------------|
| Babcock, 1931a | Prigchard, 1940b |
| Chamberlain, 1907 | Rich, 1948 |
| Clemens, 1938b, 1939c, 1951, 1953 | Ricker, 1940 |
| Fraser, 1919 | Rounsefell & Kelez, 1940 |
| Gilbert, 1914b | Rutter, 1904b |
| Gilbert & Rich, 1927 | Sano, 1951 |
| International North Pacific Fisheries
Commission, 1955 | Scheer, 1939 |
| Jordan, 1896c, 1904b | Shapovalov & Taft, 1954 |
| Jordan & Gilbert, 1887 | U.S. Fish and Wildlife Service, 1945 |
| Marsh & Cobb, 1911 | Verhoeven, 1952 |

GROWTH RATES

Remarks on the growth rates of chum salmon are included in the following references:

- | | |
|------------------------|---|
| Berg, , 1948 | International North Pacific Fisheries
Commission, 1955 |
| Chamberlain, 1907 | Kobayashi, 1955 |
| Foerster, 1929a | Marr, 1944 |
| Fraser, 1919, 1921 | Parker & Kirkness, 1951 |
| Gilbert, 1914b | Rounsefell & Kelez, 1940 |
| Henry, 1954 | Sano & Kobayashi, 1952, 1953 |
| Honma & Murakawa, 1955 | Scofield, 1898b, 1900 |

FOOD AND FEEDING HABITS

Comments on the food and/or feeding habits of chum salmon are included in the following references:

- | | |
|---|------------------------------------|
| Anon., 1952, 1953b, 1953c, 1955c | Marsh & Cobb, 1908 |
| Babcock, 1931a | Nakai & Honjo, 1954 |
| Bean, 1891, 1894 | Rich, 1948 |
| Bowser, 1913 | Ricker, 1954 |
| Carl & Clemens, 1948 | Rounsefell & Kelez, 1940 |
| Chamberlain, 1907 | Senter, 1940 |
| Clemens, 1940b, 1951, 1953 | Stone, 1897 |
| Cobb, 1917, 1921 | Thompson, 1931 |
| Einarsen, 1927 | U.S. Fish & Wildlife Service, 1945 |
| Fish, 1939 | |
| Foerster, 1955 | |
| Foskett, 1951b | |
| Fraser, 1919 | |
| International North Pacific Fisheries
Commission, 1955 | |
| Konstantinov, 1951 | |
| Locke, 1929 | |
| Lowe, 1936 | |
| Maeda, 1955 | |

PARASITES AND DISEASES

Parasites and diseases infecting the chum salmon are reported by:

Bean, 1891	Fish, 1939
Canavan, 1928	Jordan, 1896c, 1904
Clemens, 1939	Kobayashi, 1934
Davis, 1953	Nishino, 1953
Earp & Schwab, 1954	Ricker, 1940
Earp, et al., 1953	Sano, 1951
Eguchi, 1934	Shapovalov & Taft, 1954
Fallera, 1926	Ward, 1908

INTRODUCTIONS AND ACCLIMATIZATION

For data on the introduction and acclimatization of chum salmon into various exotic waters, see subject section under this category.

EGG COUNTS

The following references contain data on the number of eggs produced by chum salmon:

Aro, 1952	Hunter, 1948, 1949b
Bower, 1938a	Kuznetzov, 1928
Foerster, 1955	Neave, 1947, 1953
Foerster & Pritchard, 1936	Rich, 1940b

RELATIVE ABUNDANCE

Material on the relative abundance of chum salmon is contained in the following references. Examination of the specific entires will indicate whether the data are in the form of catch records or as counts of migrant adults.

Anon., 1931a, 1949a, 1952, 1953c, 1954, 1955c	Oregon Fish Commission, 1941, 1943, 1949
Aro, 1952	Parker, et al., 1953
Atkinson, 1955	Pressey, 1953
Babcock, 1910	Pritchard, 1949
Ellis, et al., 1937	Rich, 1935c, 1940b, 1941, 1942
Foerster, 1929a, 1943, 1947a, 194c, 1950	Rich & Ball, 1929b, 1935
Gharrett & Hodges, 1950	Robertson, 1949
Godfrey, et al., 1954	Rounsefell & Kelez, 1940
Henry, 1953	Smoker, 1954
Hunter, 1948, 1949a, 1951	Snyder, 1931
International North Pacific Fisheries Commission, 1955	U.S. Fish and Wildlife Service, 1931-1940
Johnson, et al., 1948	Washington, State of, 1935-1945
Kuznetzov, 1928	Wilcox, 1898
Milne, 1913	
Moser, 1899	
Neave, 1947	

Oncorhynchus kisutch (Walbaum), commonly called the silver, coho, or jack salmon, is distributed throughout the North Pacific Ocean from Japan to California. It is not known to enter the Arctic Ocean. In addition to the common names cited above, several other vernaculars have been employed in the literature. However, the names "silver" and "coho" are by far the most frequently employed.

DESCRIPTION - COUNTS AND MEASUREMENTS

The following papers present descriptive matter on the silver salmon and/or counts and measurements of any of its systematic characteristics.

Babcock, 1905	Hunter, 1949b
Bean, 1887b	Jordan, 1896c, 1904a, 1907
Berg, 1948	Jordan & Evermann, 1896
Carl & Clemens, 1948	Jordan & Gilbert, 1882
Chamberlain, 1907	Kendall, 1913
Clemens, 1935b, 1946b	Lockington, 1880
Crawford, 1925	O'Malley, 1920a, 1933
Eigenmann, 1890	Oshima, 1934
Evermann, 1905	Rathbun, 1900
Foerster, 1935	Shapovalov, 1947
Foerster & Pritchard, 1935	Smith, 1915
Gilbert, 1895	Snyder, 1931
Hagerman, 1951	Stone, 1897
Hikita, 1953	Walford, 1931
Hubbs, 1946	Williamson, 1927

FIGURES AND ILLUSTRATIONS

The following references contain drawings and/or illustrations of the silver salmon:

Carl & Clemens, 1948	Jones, 1915
Chamberlain, 1907	Jordan, 1884, 1896c
Clemens, 1946b	Jordan & Evermann, 1896
Cobb, 1917	Kendall, 1913
Collins, 1892	Marr, 1944
Crawford, 1925	Milne, 1913
Bean, 1891	Moser, 1899
Berg, 1948	O'Malley, 1920a, 1933
Earp & Schwab, 1954	Oshima, 1934
Evermann & Goldsborough, 1907b	Pritchard & Tester, 1944
Hikita, 1953	Roedel, 1928
Foerster & Pritchard, 1935	Shapovalov, 1947

Stone, 1897
Walford, 1931

Williamson, 1927
Wisby & Hasler, 1954

LIFE COLORS

Often natural populations of fishes have distinctive color patterns. To aid in racial analysis, an attempt was made to isolate data on life colors. The following references contain statements referring to the color of the silver salmon:

Babcock, 1931a
Bean, 1891, 1894
Berg, 1948
Carl & Clemens, 1948
Chamberlain, 1907
Clemens, 1935b, 1946b
Cobb, 1917
Cobb, 1921
Crawford, 1925
Eigenmann, 1890
Evermann, 1905
Foerster, 1935
Foerster & Pritchard, 1935
Gilbert & O'Malley, 1921
Hunter, 1949b
Jordan, 1892, 1896c, 1904a, 1907
Jordan & Evermann, 1896

Jordan & Gilbert, 1882, 1887
Kendall, 1913
Locke, 1929
Lockington, 1880
Marsh & Cobb, 1908
O'Malley, 1920a, 1933
Oshima, 1934
Roedel, 1948, 1953
Shapovalov, 1947
Smith, 1915
Snyder, 1931
Walford, 1931
Williamson, 1927

RELATIONSHIPS

The following references contain data on the relationships of silver salmon to other species. Distinctions employed in keys are included in this category.

Babcock, 1931a
Berg, 1948
Burner, 1951
Chamberlain, 1907
Clemens, 1935b, 1946b
Foerster & Pritchard, 1935
Hagerman, 1951
Hallock, et al., 1952
Hoar, 1951a

Jordan & Evermann, 1896
Jordan & Gilbert, 1882
Kobayasi, 1955
Locke, 1929
Murphy & Shapovalov, 1951
Schultz, 1934
Shapovalov, 1947
Snyder, 1931
Walford, 1931

RACIAL ANALYSIS

The following papers contain comments or data upon the races or populations of the silver salmon:

Babcock, 1905, 1931a
 Bower, 1933, 1934
 Chamberlain, 1907
 Chamberlain & Bower, 1913
 Clemens, 1952
 Craigie, 1926
 Evermann & Goldsborough, 1907b
 Fraser, 1921
 Gilbert, 1913b, 1924c
 Gilbert & Rich, 1927
 Charrett & Hodges, 1950
 International North Pacific Fisheries
 Commission, 1955
 Jensen, 1953

Jordan, 1904b
 Kirkness, et al., 1953
 Marr, 1944
 McConnell & Brett, 1946
 Milne, 1955
 Moser, 1899
 Parker & Kirkness, 1951
 Powers, 1941
 Pritchard, 1936b
 Rathbun, 1900
 Rich, 1925a
 Rich & Ball, 1929b
 Scheer, 1939
 Smith, 1899
 Verhoeven, 1952
 Williamson, 1927

ANATOMY AND PHYSIOLOGY

Included within this category are references concerning the anatomy, histology, osteology (including sub-fossil finds) and physiology of the silver salmon.

Black, 1951a, 1951b
 Brett, 1952b
 Brett & MacKinnon, 1952, 1954
 Cobb, 1921
 Coker, 1922
 Davidson & Shostrom, 1936
 Greene, 1911b
 Hoar, 1951c, 1953

Jordan, 1904a
 Katz, 1950, 1951
 Katz & Southward, 1950
 Kendall, 1922
 Lowman, 1953
 Lowman & Jensen, 1955
 Potter, & Hoar, 1954
 Reagan, 1917

BIOCHEMISTRY

Data on the biochemistry of silver salmon are presented in the following papers:

Bailey, 1952
 Brocklesby, 1933
 Brocklesby & Denstedt, 1933
 Dyer, 1952

Fallera, 1926
 Jarvis, et al., 1926
 Pottinger & Baldwin, 1940
 Riddell, 1936b

SEX RATIOS

Data on the sex ratios of silver salmon are presented in the following papers.
 Crawford, 1927, notes hermaphroditism in the silver salmon.

Chamberlain, 1907
 Gilbert, 1914a, 1924c
 Marr, 1944

Snyder, 1931
 Stone, 1928a, 1928b, 1929a,
 1930b

TIME OF SPAWNING MIGRATION

Data on the time of return of silver salmon from the ocean to the stream mouths are contained in the following references:

Atkinson, 1955	Henry, 1953
Babcock, 1916, 1931a	Jordan & Starks, 1896
Chamberlain, 1907	McHugh, 1915
Cobb & Kutchin, 1907	Neave, 1949
Davidson & Vaughan, 1941	Pritchard, 1932
Davidson, et al., 1943	Rivers, 1947
Ekbaum, 1936	Rounsefell & Kelez, 1940
Fraser, 1917a	Scofield, 1920
Fry & Hughes, 1954	Thompson, 1931
Gilbert, 1895, 1924	Williamson, 1929
	Williamson & Clemens, 1932

Data on the time fish are observed migrating upstream at any point in its course are contained in the following references:

Anon, 1916a, 1938a	Evermann & Meek, 1898
Abernathy, 1887	Fish, 1948
Aro, 1952	Foerster, 1929a, 1935, 1955
Babcock, 1903, 1907, 1910, 1916	Foerster & Pritchard, 1935
Barin, 1887	Foskett, 1947a
Bean, 1887b, 1891, 1894	Fraser, 1917a, 1919
Berg, 1948	Gibson, 1923
Bower, 1922, 1923, 1925b, 1926, 1927,	Godfrey, et al., 1954
1929a, 1929b, 1930, 1931, 1932, 1933,	Greene, 1911b
1934, 1935, 1936, 1938a, 1938b, 1940	Handa, 1934
1941	Hume, 1893
Bower & Aller, 1915, 1917a, 1917b	Hunter, 1948, 1949a
Bower & Fassett, 1914	International North Pacific Fisheries
Bowers, 1899	Commission, 1955
Bowser, 1909	Jordan, 1884, 1892, 1896c, 1904a
Brett & Pritchard, 1946a	Jordan & Evermann, 1896
Bryant, 1949	Jordan & Gilbert, 1887
Burner, 1951	Jordan & Starks, 1896b
California, State of, 1952-1954	Kirkness, et al., 1952, 1953
Carl & Clemens, 1948	Kuznetsov, 1928
Chamberlain, 1907	Leach, 1926, 1927
Chamberlain & Bower, 1913	Marr, 1944
Cleaver, 1951	Marsh & Cobb, 1908, 1910
Clemens, 1946b	McDonald, 1894a
Clemens, et al., 1938	McKernan, et al., 1950
Cobb, 1917, 1921	Milne, 1950b, 1955
Coker, 1922	Milne, 1913
Collins, 1892	Moffett & Smith, 1950
Craigie, 1926	Moser, 1899, 1902
Davidson, et al., 1943	Murphy, 1952
Davidson, et al., 1941	Murphy & Shapovalov, 1951
Davison, 1954	Neave, 1943
Evermann, 1905	Novisoff, 1912
Evermann & Goldsborough, 1907b	O'Malley, 1920a

Parker & Kirkness, 1951
Parkhurst, et al., 1950
Popov, 1933
Fritchard, 1940b, 1943c, 1945b
Radcliffe, 1920
Rathbun, 1894, 1900
Rich, 1942
Rich & Ball, 1929b
Rutter, 1904b, 1908
Shapovalov & Taft, 1954
Smith, 1895b

Smoker, 1954
Snyder, 1931
Stone, 1897
U.S. Fish and Wildlife Service, 1924,
1945
U.S. Foreign Economic Administration,
1945
Van Cleve, 1945
Van Hyning, 1951
Wilcox, 1898
Williamson, 1927
Wynne-Edwards, 1947a

SIZE AT TIME OF RETURN

Data on the size of silver salmon at time of return are contained
in the following references:

Aro, 1952
Baievsky, 1926
Beal, 1955
Bean, 1887b, 1894
Burner, 1951
Carl, 1939
Chapman, 1940a
Clemens, 1930, 1935b, 1939b, 1946b,
Cobb, 1917
Coker, 1922
Collins, 1892
Davidson & Vaughan, 1941
Dymond, 1932
Evermann, 1905
Evermann & Goldsborough, 1907b
Evermann & Meek, 1898
Foerster, 1929a, 1955
Fraser, 1917a, 1919, 1921
Gilbert, 1913b, 1914a, 1924c
Godfrey, et al., 1954
Greene, 1911b
Hunter, 1949b
Hume, 1893
Jordan, 1884, 1892
Jordan & Evermann, 1896
Jordan & Gilbert, 1887
Jordan & Starks, 1896b

Kirkness, et al., 1952, 1953
Kuznetsov, 1928
Locke, 1929
Marsh & Cobb, 1910
McDonald, 1895
Moser, 1899
Neave, 1939, 1949
Novisoff, 1912
O'Malley, 1920a
Parker & Kirkness, 1951
Pressey, 1953
Radcliffe, 1920
Rathbun, 1900
Rutter, 1904b
Scheer, 1939
Scofield, 1920b
Shapovalov & Taft, 1954
Smith, 1895b
Snyder, 1931
Stone, 1928a, 1928b, 1930b
Stone, 1897
Tanner, et al., 1890
U.S. Fish & Wildlife Service, 1945
Van Huning, 1951
Wales & Coots, 1955a
Williamson, 1927
Williamson & Clemens, 1932

AGE AT TIME OF RETURN

Data on the age of silver salmon at time of return are contained in the following references:

- | | |
|---|--|
| Anon., 1937, 1953c, 1954, 1955c | Hunter, 1949b |
| Babcock, 1907, 1931a | International North Pacific Fisheries Commission, 1955 |
| Bean, 1891 | |
| Berg, 1948 | Jordan, 1896c, 1904a |
| Bower, 1933 | Kelez, 1937 |
| Bower & Aller, 1917a | Kirkness, et al., 1952, 1953 |
| Bowser, 1913 | Kuznetzov, 1928 |
| Carl & Clemens, 1948 | Milne, 1955 |
| Chamberlain, 1907 | Milne, 1913 |
| Cleaver, 1951 | Murphy, 1952 |
| Clemens, 1930, 1935b, 1938b, 1939b, 1946b, 1952 | Neave, 1948, 1949, 1951 |
| Cobb, 1917 | Neave & Pritchard, 1942 |
| Davidson & Shostrom, 1936 | O'Malley, 1920a |
| Davidson & Vaughan, 1939b, 1941, | Oshima, 1934 |
| Davidson, et al., 1943 | Parker & Kirkness, 1951 |
| Dymond, 1932 | Pressey, 1953 |
| Eigenmann, 1890 | Pritchard, 1940b |
| Fish, 1948 | Rich, 1948 |
| Foerster, 1935, 1943, 1949, 1955 | Ricker, 1954 |
| Foerster & Pritchard, 1935 | Rounsefell & Kelez, 1940 |
| Fraser, 1919, 1921 | Rutter, 1904b |
| Fry & Hughes, 1954 | Scheer, 1939 |
| Gilbert, 1913b, 1914a, 1924c | Shapovalov & Taft, 1954 |
| Godfrey, et al., 1954 | Smoker, 1954 |
| Henry, 1953 | Snyder, 1931 |
| Hoar, 1951b | U.S. Fish and Wildlife Service, 1945 |
| | Williamson & Clemens, 1932 |

TYPE OF SPAWNING STREAM

Data on the nature of the spawning stream chosen by the silver salmon are contained in the following references:

- | | |
|--------------------------|----------------------------|
| Anon., 1904a, 1937 | Foerster & Pritchard, 1935 |
| Babcock, 1931a | Greene, 1911b |
| Bean, 1891, 1894 | Hume, 1893 |
| Bryant, 1949 | Jordan, 1904a |
| Burner, 1951 | Jordan & Evermann, 1896 |
| Chamberlain, 1907 | Jordan & Gilbert, 1887 |
| Clemens, 1946b, 1953 | Kirkness, et al., 1952 |
| Davidson & Vaughan, 1941 | Kuznetzov, 1928 |
| Davidson, et al., 1943 | McDonald, 1894a |
| Evermann, 1905 | Murphy & Shapovalov, 1951 |
| Fish, 1948 | Neave, 1949 |
| Foerster, 1935 | Neave & Wickett, 1953 |

O'Malley, 1920a
Powers, 1941
Pritchard, 1934e, 1940b, 1949
Rathbun, 1900
Rich, 1948

Rutter, 1904b
Scheer, 1939
Van Cleve, 1945
Wynne-Edwards, 1947a

DISTANCE TRAVELED UPSTREAM

The following references mention the distance traveled upstream

by the silver salmon:

Babcock, 1931a
Bean, 1887b, 1891, 1894
Bryant, 1949
Burner, 1951
Carl & Clemens, 1948
Clemens, 1935b, 1953
Davidson, et al., 1943
Evermann, 1905
Evermann & Goldsborough, 1907b
Foerster & Pritchard, 1935
Fraser, 1917a
Gilbert, 1924c
Gilbert & O'Malley, 1921
Greene, 1911b
Hallock, et al., 1952

International North Pacific Fisheries
Commission, 1955
Jordan, 1884, 1892, 1896c, 1904a
Jordan & Evermann, 1896
Jordan & Gilbert, 1887
Kuznetsov, 1928
Locke, 1929
McDonald, 1895
Murphy, 1952
O'Malley, 1920a
Scheer, 1939
Smith, 1895b
Van Cleve, 1945
Wynne-Edwards, 1947a, 1952

NATURE OF SPAWNING SITE

Notes regarding the nature of the spawning site of silver salmon are contained in the following references:

Anon., 1954
Bower, 1925b
Burner, 1951
Chamberlain, 1907
Davidson, et al., 1943
Evermann, 1905
Foerster, 1929a, 1935
Foskett, 1947a, 1947b
Hallock, et al., 1952
Hasler & Farner, 1942
Hickman, 1932

Mac Day, 1931
Jordan, 1892, 1896c, 1904a
Jordan & Evermann, 1896
Moser, 1899
O'Malley, 1920a
Pritchard, 1940b
Rich, 1948
Rounsefell & Kelez, 1940
U.S. Fish and Wildlife Service, 1945
Van Cleve, 1945

Data on the spawning period of the silver salmon are contained in the following references:

- | | |
|--|------------------------------------|
| Andriashev, 1955 | Rounsefell & Kelez, 1940 |
| Anon., 1953c | Rutter, 1904b, 1908 |
| Babcock, 1916 | Shaw & Maga, 1943 |
| Barin, 1887 | Smith, 1899 |
| Berg, 1948 | Stone, 1914, 1915a, 1915b, 1916a, |
| Bower, 1923, 1927, 1929a | 1917a, 191 b, 1919, 1920b, 1921a, |
| Brett & Fritchard, 1946a | 1921b, 1922b, 1923b, 1924a, 1924b, |
| Bryant, 1949 | 1925a, 1925b, 1926a, 1927a, 1927b, |
| Chamberlain, 1907 | 192 a, 192 b, 1929a, 1929b, 1930b, |
| Clemens, 1939b, 1946b | 1931b, 1932b |
| Craig & Hacker, 1940 | Stone, 1897 |
| Davidson & Vaughan, 1941 | Sumner, 1953 |
| Davidson, et al., 1943 | Van Cleve, 1945 |
| Dymond, 1932 | Wynne-Edwards, 1947a |
| Evermann & Beek, 1898 | |
| Fish, 1948 | |
| Foskett, 1947b | |
| Gibson, 1922, 1923, 1929 | |
| Gilbert & O'Malley, 1941 | |
| Hickman, 1918, 1921, 1922, 1925, 1926, | |
| 1927, 1928, 1929, 1930, 1931, 1932 | |
| Hickman & Collison, 1920 | |
| Hubbs, 1946 | |
| Hume, 1893 | |
| Jordan & Evermann, 1896 | |
| Kuznetzov, 1928 | |
| Leach, 1924, 1928, 1930 | |
| Locke, 1929 | |
| Lockington, 1880 | |
| Marsh & Cobb, 1907, 1908, 1911 | |
| McConnell & Brett, 1946 | |
| Moffett & Smith, 1950 | |
| Moser, 1899 | |
| Motherwell, 1934 | |
| Murphy, 1952 | |
| Neave, 1943, 1949 | |
| O'Malley, 1920a | |
| Pritchard & Neave, 1942 | |
| Rathbun, 1900 | |
| Ravenel, 1902 | |

SEXUAL DIMORPHISM

Data on sexual dimorphism in silver salmon are mentioned in the following references:

- | | |
|----------------------------------|-------------------------|
| Babcock, 1931a | Jordan & Evermann, 1896 |
| Bean, 1891, 1894 | Jordan & Gilbert, 1887 |
| Brett & Pritchard, 1946a, 1946b | Kuznetsov, 1928 |
| Carl & Clemens, 1948 | Locke, 1929 |
| Chamberlain, 1907 | Lockington, 1880 |
| Clemens, 1946b | Marr, 1944 |
| Davidson & Vaughan, 1911 | O'Malley, 1920a |
| Davidson, et al., 1913 | Rutter, 1904b |
| Evermann & Goldsborough, 1907b | Shapovalov, 1947 |
| Gilbert, 1924c | Shapovalov & Taft, 1954 |
| Gilbert & O'Malley, 1921 | Stone, 1897 |
| Jordan, 1892, 1896c, 1904a, 1907 | |

SPAWNING BEHAVIOR

Data on the spawning behavior of silver salmon are contained in the following references:

- | | |
|-------------------|-------------------------|
| Anon., 1953c | Foerster, 1935 |
| Babcock, 1931a | Jordan, 1892, 1896c |
| Bean, 1894 | Jordan & Evermann, 1896 |
| Berg, 1948 | Jordan & Gilbert, 1887 |
| Bower, 1923 | Moser, 1899 |
| Burner, 1951 | Rutter, 1904b |
| Chamberlain, 1907 | Shapovalov & Taft, 1954 |
| Evermann, 1905 | |

POST-SPAWNING BEHAVIOR

Data on the post-spawning behavior of silver salmon are noted in the following references:

- | | |
|----------------------------|-------------------------|
| Bean, 1891, 1894 | Jordan & Evermann, 1896 |
| Evermann & Meek, 1898 | Locke, 1929 |
| Greene, 1911b | Oshima, 1934 |
| Gilbert, 1914a | Rethbun, 1900 |
| Hume, 1893 | Rutter, 1904b |
| Jordan, 1892, 1896c, 1904a | Stone, 1897 |
| | Willis, 1954 |

DATE EGGS HATCH

Data on the time of hatching of the silversalmon are included in the following references:

Beal, 1955	Moffett & Smith, 1950
Carl & Clemens, 1948	Rich, 1948
Davidson & Vaughan, 1939b	Rivers, 1947
Evermann & Meek, 1898	Shapovalov & Berrian, 1940
Foerster & Pritchard, 1935	Shaw & "aga, 1943
Fraser, 1917a	Smith, 1915
International North Pacific Fisheries Commission, 1955	U.S. Fish and Wildlife Service, 1945
Jordan, 1896c	Van Cleve, 1945
Jordan & Evermann, 1896	Wickett, 1951
Marsh & Cobb, 1910	Williamson, 1927

BEHAVIOR OF FRY AND FINGERLINGS

Data on the behavior of the fry and fingerlings of silver salmon are included in the following references:

Anon., 1953c, 1954	Moser, 1899
Black, 1951b	Murphy & Shapovalov, 1951
Chamberlain, 1907	Pritchard, 1940b
Clemens, 1953	Rich, 1948
Davidson & Vaughan, 1941	Rutter, 1904b
Foerster, 1955	Shapovalov & Berrian, 1940
Fraser, 1917a, 1919	Shapovalov & Taft, 1954
Hallock, et al., 1952	Smith, 1899
Hoar, 1951a, 1953, 1954	Stone, 1897
MacKimon & Brett, 1955	U.S. Fish and Wildlife Service, 1935
Moffett & Smith, 1950	Wales & Coots, 1955a

TIME YOUNG SPEND IN FRESHWATER

Data on the time spent in freshwater by the young silver salmon are contained in the following references:

Anon., 1948, 1952	Cobb, 1921
Babcock, 1931a	Davidson & Vaughan, 1939b, 1941
Bean, 1894	Davis, 1953
Bower, 1934	Earp, et al., 1953
Bowser, 1913	Evermann & Meek, 1898
Carl & Clemens, 1948	Foerster & Pritchard, 1935
Chamberlain, 1907	Fraser, 1917a, 1919
Cleaver, 1951	Gilbert, 1913b, 1917a, 1924c
Clemens, 1935b, 1946b, 1952, 1953	Hallock, et al., 1952
Clemens, et al., 1938	Honda, 1934

Henry, 1953
 Hoar, 1951a
 Hourston, et al., 1955
 Hubbs, 1946
 Hume, 1893
 Hunter, 1949a
 Locke, 1929
 MacKimon & Brett, 1955
 McDonald, 1894c, 1895
 McKernan, et al., 1950
 Milne, 1913
 Moffett & Smith, 1950
 Murphy, 1952
 Murphy & Shapovalov, 1951
 Neave, 1948, 1949, 1951

Neave & Pritchard, 1942
 Neave & Wickett, 1953
 O'Malley, 1920a
 Oshima, 1934
 Parker & Kirkness, 1951
 Pritchard, 1936b, 1940b
 Rich, 1948
 Ricker, 1954
 Rutter, 1904b, 1908
 Scheer, 1939
 Shapovalov & Taft, 1954
 Smoker, 1953, 1954
 U.S. Fish and Wildlife Service, 1945
 Van Cleve, 1945
 Wales and Coots, 1955a

DATE OF SEAWARD MIGRATION

Statements on the date of seaward migration of young silver salmon
 are contained in the following references:

Babcock, 1905
 Bean, 1894
 Bower, 1925b, 1938a
 Bower & Fassett, 1914
 Brett & Mackinnon, 1953
 Brett & Pritchard, 1946a
 Chamberlain, 1907
 Clemens, et al., 1938
 Davidson & Vaughan, 1941
 Davison, et al., 1954
 Fish, 1948
 Foerster, 1952
 Foerster & Pritchard, 1935
 Fraser, 1917a, 1919
 Gharrett & Hodges, 1950
 Gilbert, 1914a
 Greene, 1911b
 Hallock, et al., 1952
 Hamilton & Andrew, 1954
 Hoar, 1951a
 Hubbs, 1946

International North Pacific Fisheries
 Commission, 1955
 Johnson, et al., 1948
 MacKimon & Brett, 1955
 Marr, 1944
 Moffett & Smith, 1950
 Murphy, 1952
 Murphy & Shapovalov, 1951
 Neave, 1947, 1948
 Newcomb, 1948
 Oshima, 1934
 Parker, et al., 1953
 Pritchard, 1936c, 1936b, 1940b
 Rich, 1948
 Rivers, 1947
 Rounsefell & Kelez, 1940
 Rutter, 1904b
 Shapovalov & Taft, 1954
 Smith, 1899
 Snyder, 1931
 Sumner, 1953
 Van Cleve, 1945
 Wales & Coots, 1955a

SIZE AT TIME OF SEAWARD MIGRATION

Data on the size of young silver salmon at the time of seaward migration are contained in the following references:

Babcock, 1903	Hourston, et al., 1955
Chamberlain, 1907	McDonald, 1895, 1894c
Chamberlain & Bower, 1913	Milne, 1913
Davidson & Vaughan, 1941	Moffett & Smith, 1950
Davison, 1954	Moser, 1902
Foerster & Pritchard, 1935	Pritchard, 1936c
Fraser, 1919	Rich, 1948
Gharrett & Hodges, 1950	Rounsefell & Kelez, 1940
Gilbert, 1913b	Van Cleve, 1945
Hallock, et al., 1952	

MOVEMENTS IN THE OCEAN

Data on the movements in the ocean of the silver salmon are contained in the following references:

Babcock, 1903, 1931a	Jordan, 1896c, 1904a, 1904b
Barnaby, 1952	Jordan & Evermann, 1896
Bean, 1891, 1894	Mathisen, 1950
Byers, 1942	Murphy, 1952
Chamberlain, 1907	Murphy & Shapovalov, 1951
Clark & Ross, 1942	Neave & Pritchard, 1942
Clemens, 1935b	Powers, 1941
Cobb, 1917, 1921	Rathbun, 1900
Davidson, 1940c	Rich, 1925a, 1935c
Davidson & Hutchinson, 1940	Rounsefell & Kelez, 1940
Davidson & Vaughan, 1941	Rutter, 1904b
Fraser, 1917a	Scheer, 1939
Gilbert, 1895	Shapovalov & Taft, 1954
Hallock, et al., 1952	Snyder, 1931
Hoar, 1953	Taft, 1937a
Hubbs, 1946	Verhoeven, 1952
International North Pacific Fisheries Commission, 1955	Williamson, 1927

MARKING OR TAGGING AND RECAPTURE DATA

Data on marking or tagging and recapture of silver salmon are contained in the following references:

- | | |
|--|---|
| Anon., 1937, 1952, 1953c, 1954, 1955b, 1955d | Kirkness, et al., 1952, 1953 |
| Bowser, 1913 | Marsh & Cobb, 1907, 1908, 1911 |
| Brett & Pritchard, 1946b | McKernan, et al., 1950 |
| California, State of, 1952-1954 | Milne, 1952, 1955 |
| Chamberlain, 1908 | Morgon & Cleaver, 1954 |
| Clark & Hatton, 1942 | Neave, 1941a, 1941b, 1951 |
| Clemens, 1930, 1939c | Parker & Kirkness, 1951 |
| Clemens, et al., 1939 | Pritchard, 1930, 1931c, 1932b, 1934b, 1934e, 1940b, 1945c |
| Coker, 1922 | Pritchard & Neave, 1942 |
| Craigie, 1926 | Rich, 1925a, 1927, 1935a, 1935c, 1941 |
| Fish, 1948 | Rich & Morton, 1930 |
| Foerster, 1929e, 1941, 1942, 1943, 1944a, 1945, 1946a, 1947a, 1948, 1949 | Rich & Suomela, 1929a |
| Gilbert & Rich, 1927 | Rounsefell & Kelez, 1940 |
| Godfrey, et al., 1954 | Rutter, 1904b |
| Greene, 1911b | Scheer, 1939 |
| Higgins, 1929 | Silliman, 1948b |
| International North Pacific Fisheries Commission, 1955 | Snyder, 1931 |
| Jensen, 1953 | Sumner, 1953 |
| Jordan, 1892, 1896c, 1904b | Taft, 1937a |
| Kauffman, 1951 | Taft & Shapovalov, 1938a |
| Kelez, 1937 | Van Hyning, 1951 |
| | Williamson, 1927, 1929, |
| | Williamson & Clemens, 1932 |

HOMING INSTINCT

Discussions or data concerning the homing instinct in silver salmon are contained in the following references:

- | | |
|--|--------------------------------------|
| Anon., 1937 | Kelez, 1937 |
| Babcock, 1931a | Marsh & Cobb, 1911 |
| Brett & MacKinnon, 1954 | Neave, 1941b |
| Chamberlain, 1907 | Powers, 1941 |
| Clemens, 1938b, 1939c, 1953 | Pritchard, 1940b |
| Craigie, 1926 | Rich, 1948 |
| Davidson & Vaughan, 1939b, 1941 | Rich & Ball, 1931 |
| Foerster, 1941 | Rounsefell & Kelez, 1940 |
| Fraser, 1919 | Rutter, 1904b |
| Gilbert & Rich, 1927 | Scheer, 1939 |
| Hume, 1893 | Shapovalov, 1940 |
| International North Pacific Fisheries Commission, 1955 | Shapovalov & Taft, 1954 |
| Jordan, 1892, 1896c, 1904b | Taft & Shapovalov, 1938a |
| Jordan & Gilbert, 1887 | U.S. Fish and Wildlife Service, 1945 |
| | Verhoeven, 1952 |
| | Wisby & Hasler, 1954 |

GROWTH RATES

Remarks on the growth rates of silver salmon are included in the following references:

Berg, 1948	Marr, 1944
Chamberlain, 1907	Parker & Kirkness, 1951
Clemens, 1930	Rounsefell & Kelez, 1940
Fraser, 1917a, 1919, 1921	Shapovalov & Taft, 1954
Hasler, 1938	Van Hyning, 1951
Hasler & Farnar, 1942	
International North Pacific Fisheries Commission, 1955	

FOOD AND FEEDING HABITS

Comments on the food and/or feeding habits of silver salmon are contained in the following references:

Anon., 1952, 1953c, 1955c	Maeda, 1955
Babcock, 1931a	Marsh & Cobb, 1908
Bean, 1891, 1894	Oregon Fish Commission, 1949b
Barnaby, 1952	Pritchard, 1936c
Bowser, 1913	Pritchard & Tester, 1943, 1944
Carl & Clemens, 1948	Rich, 1948
Chapman, 1936	Ricker, 1937, 1954
Clemens, 1935b, 1939b, 1940b, 1953	Rounsefell & Kelez, 1940
Clemens, et al., 1938	Rutter, 1904b
Cobb, 1917, 1921	Senter, 1940
Fish, 1939	Shapovalov & Taft, 1954
Foerster, 1941, 1942, 1955	Silliman, 1941
Foskett, 1951b	Smith, 1895b, 1897
Fraser, 1917a, 1919, 1923	Thompson, 1931
Gilbert, 1913b, 1914a	U.S. Fish and Wildlife Service, 1945
Greene, 1911b	Williamson, 1927,
Hasler, 1938	Withler, 1948
Heg & Van Hyning, 1951	
International North Pacific Fisheries Commission, 1955	
Kendall, 1913	
Locke, 1929	

PARASITES AND DISEASES

Parasites and diseases infecting the silver salmon are reported by:

Bangham & Adams, 1954	Guberlet, 1926
Bean, 1891	Haderlie, 1953
Carl, 1939	Johnson & Bruce, 1952
Clemens, 1939	Jordan, 1892, 1896c, 1904
Davis, 1927a, 1927b, 1953	Shapovalov & Taft, 1954
Davison, et al., 1954	Smith & Quistorff, 1940
Earp & Schwab, 1954	Nales & Wolf, 1955b
Earp, et al., 1953	Ward, 1908
Ekbaum, 1936	Wardle, 1932
Fallera, 1926	Wilson, 1912
Fish, 1939	

INTRODUCTIONS AND ACCLIMATIZATION

For data on the introduction and acclimatization of silver salmon into various exotic waters, see subject section under this category.

EGG COUNTS

The following references contain data on the number of eggs produced by the silver salmon:

Aro, 1952	Kuznetzov, 1928
Bower, 1938a	Moffett & Smith, 1950
Bryant, 1923	Moser, 1902
Foerster, 1955	Neave, 1947
Foerster & Pritchard, 1936	Rich, 1940b
Hunter, 1948, 1949b	Wickett, 1951

RELATIVE ABUNDANCE

Material on the relative abundance of silver salmon is contained in the following references. Examination of the specific entries will indicate whether the data are in the form of catch records or as counts of migrant adults.

Anon., 1931a, 1938a, 1949a, 1952, 1953c, 1954, 1955c	Mathisen, 1950
Aro, 1952	McKernan, et al., 1950
Atkinson, 1955	Milne, 1952
Babcock, 1910	Milne, 1913
California, State of, 1902-1952, 1952-1954	Morgan & Cleaver, 1954
California Bureau of Marine Fisheries, 1929-1952	Moser, 1899, 1902
Carl, 1939	Neave, 1939, 1947, 1951
Chapman, 1940b	Oregon Fish Commission, 1943
Ellis, et al., 1937	Parker, et al., 1953
Foerster, 1929a, 1941, 1942, 1943, 1944a, 1945, 1947a, 1948, 1950	Pressey, 1953
Foerster & Ricker, 1953	Pritchard, 1943c, 1949
Gharrett & Hodges, 1950	Rich, 1935c, 1940b, 1941, 1942
Godfrey, et al., 1954	Rich & Ball, 1929b, 1931, 1935
Henry, 1953	Robertson, 1949
Holmes, 1940	Rounsefell & Kelez, 1940
Hunter, 1948, 1949a	Schoninger, et al., 1951
International North Pacific Fisheries Commission, 1955	Smith, 1895b
Johnson, et al., 1948	Smoker, 1953, 1954
Kauffman, 1951	Snyder, 1931
Kuznetzov, 1928	U.S. Fish and Wildlife Service, 1924
Marine Fisheries Branch (Staff), 1951	1931-1940, 1938-1940
	Van Hyning, 1951
	Washington, State of, 1935-1945
	Wilcox, 1898
	Wickett, 1951

KING SALMON

Oncorhynchus tshawytscha (Walbaum), commonly called the king, chinook, spring, or quinnat salmon, is distributed throughout the North Pacific Ocean, from Japan to California. There are doubtful records for the Arctic American Coast. Many different common names have been employed for this species. In the literature abstracted by us, it would appear that "king," "spring," and "chinook" are respectively the most commonly employed.

DESCRIPTION - COUNTS AND MEASUREMENTS

The following papers present descriptive matter on the king salmon and/or counts and measurements of any of its systematic characteristics.

- | | |
|----------------------------|----------------------------|
| Babcock, 1905 | Jordan, 1896c, 1904a, 1907 |
| Bean, 1887b | Jordan & Evermann, 1896 |
| Berg, 1948 | Jordan & Gilbert, 1882 |
| Bonham & Seymour, 1949 | Kendall, 1913 |
| Brice, et al., 1898 | Lockington, 1880 |
| Carl & Clemens, 1948 | McGregor, 1922b, 1923b |
| Chamberlain, 1907 | O'Malley, 1920a, 1933 |
| Clemens, 1935b, 1946b | Oshima, 1934 |
| Clothier, 1950 | Parker, et al., 1952 |
| Crawford, 1925 | Pritchard, 1945a |
| Davidson & Shostrom, 1936 | Rathbun, 1900 |
| Eigenmann, 1890 | Rich, 1921b |
| Evermann, 1897, 1905 | Riddle, 1917 |
| Farr, 1883 | Shapovalov, 1947 |
| Foerster, 1935 | Smith, 1915 |
| Foerster & Pritchard, 1935 | Snyder, 1921b, 1922, 1931 |
| Gilbert, 1895 | Stone, 1897, 1884a |
| Gilbert & Evermann, 1895 | Suckl y, 1874 |
| Hagerman, 1951 | Tchernavin, 1938 |
| Hikita, 1953 | Walford, 1931 |
| Hobbs, 1937 | Williamson, 1927 |
| Hoover, 1936 | |
| Hubbs, 1946 | |

FIGURES AND ILLUSTRATIONS

The following references contain drawings and/or illustrations of the king salmon:

- | | |
|---------------------|----------------------------------|
| Bean, 1891 | California, State of, 1904, 1910 |
| Berg, 1948 | Carl & Clemens, 1948 |
| Brice, et al., 1898 | Chamberlain, 1907 |

Clemens, 1946b
 Cobb, 1917
 Collins, 1892
 Crawford, 1925
 Davidson & Shostrom, 1936
 Evermann, 1897
 Evermann & Goldsborough, 1907b
 Foerster & Pritchard, 1935
 Hikita, 1953
 Hoover, 1936
 Jones, 1915
 Jordan, 1894, 1896c
 Jordan & Evermann, 1896
 Kendall, 1913
 Marr, 1944

Moser, 1899
 O'Malley, 1920a, 1933
 Oshima, 1934
 Pritchard & Tester, 1944
 Roedel, 1948
 Rutter, 1902, 1904a
 Scofield, 1900
 Shapovalov, 1947
 Smith, 1895a, 1898b
 Snyder, 1921b
 Stone, 1884a, 1897
 Walford, 1931
 Wilcox, 1902
 Williamson, 1927

LIFE COLORS

Often natural populations of fishes have distinctive color patterns. To aid in racial analysis, an attempt was made to isolate data on life colors. The following references contain statements referring to the color of the king salmon:

Babcock, 1927, 1931a
 Bean, 1891, 1894
 Berg, 1948
 Bonham & Seymour, 1949
 Brice, et al., 1898
 Briggs, 1953
 Carl & Clemens, 1948
 Chamberlain, 1907
 Clemens, 1935b, 1946b
 Cobb, 1911, 1917, 1921
 Crawford, 1925
 Eigenmann, 1890
 Evermann, 1896, 1897, 1905
 Foerster, 1935
 Foerster & Pritchard, 1935
 Gilbert & O'Malley, 1921
 Hoover, 1936
 Jordan, 1892, 1896c, 1904a, 1907

Jordan & Evermann, 1896
 Jordan & Gilbert, 1882, 1887
 Kendall, 1913
 Locke, 1929
 Lockington, 1880
 Marsh & Cobb, 1908
 O'Malley, 1904, 1920a, 1933
 Oshima, 1934
 Roedel, 1948, 1953a
 Rutter, 1904b
 Shapovalov, 1947
 Smith, 1915
 Snyder, 1924b, 1931
 Snyder & Scofield, 1924a
 Stone, 1874b, 1883a
 Suckley, 1874
 Walford, 1931
 Williamson, 1927

RELATIONSHIPS

The following references contain data on the relationships of king salmon to other species. Distinctions employed in keys are included in this category.

Babcock, 1931a
 Berg, 1948

Burner, 1951
 Chamberlain, 1907

Clemens, 1935b, 1946b
 Clothier, 1950
 Eigenmann, 1895
 Evermann, 1897
 Foerster & Pritchard, 1935
 Girard, 1857
 Hagerman, 1951
 Hallock, et al., 1952
 Jordan & Evermann, 1896
 Jordan & Gilbert, 1882
 Kobayasi, 1955

Locke, 1929
 Murphy & Shapovalov, 1951
 Rich, 1921b
 Schultz, 1934
 Shapovalov, 1947
 Smith, 1895a, 1898b
 Snyder, 1931
 Tchernavin, 1938
 Walford, 1931

RACIAL ANALYSIS

The following papers contain comments or data upon the races or populations of the king salmon:

Babcock, 1905, 1927, 1931a
 Bower, 1933, 1934
 Bowers, 1912
 Chamberlain, 1907
 Chamberlain & Bower, 1913
 Chapman & Quistorff, 1938
 Craig & Townsend, 1946
 Davidson & Shostrom, 1936
 Evermann & Goldsborough, 1907b
 Fraser, 1916, 1921
 Gharrett & Hodges, 1950
 Gilbert, 1913b, 1924c
 Gilbert & Rich, 1927
 Hanson, et al., 1940
 Holmes, 1928
 International North Pacific Fisheries
 Commission, 1955
 Jordan, 1904b

Kirkness, et al., 1953
 Little, 1898
 Marr, 1944
 McGregor, 1923b
 Milne, 1955
 Moser, 1899
 Mottley, 1929
 Needham, et al., 1941
 Parker, 1943
 Parker & Kirkness, 1951
 Parker, et al., 1952
 Pritchard, 1934c, 1945a
 Rathbun, 1900
 Rich, 1921b, 1926
 Rich & Ball, 1929b
 Rich & Holmes, 1928
 Scheer, 1939
 Smith, 1899
 Townsend, 1944
 Verhoeven, 1952
 Williamson, 1927

ANATOMY AND PHYSIOLOGY

Included within this category are references concerning the anatomy, histology, osteology (including sub-fossil finds) and physiology of the king salmon.

Black, 1951b
 Brett, 1952b
 Brett & MacKinnon, 1952, 1954
 Chapman, 1938
 Cobb, 1921
 Coker, 1922
 Davidson & Shostrom, 1936
 Greene, 1905, 1911a, 1911b, 1912,
 1913, 1914, 1915a, 1919, 1921a,
 1921b

Greene & Greene, 1915
 Holmes, 1928
 Jordan, 1904a
 Kendall, 1922
 Palmer, et al., 1954 Powers, 1939
 Reagan, 1917
 Smith, 1916
 Sumner, 1906
 Tchernavin, 1936

BIOCHEMISTRY

Data on the biochemistry of king salmon are presented in the following papers:

Atwater, 1892
Bailey, 1952
Beveridge, 1947
Brocklesby, 1933, 1940
Brocklesby & Denstedt, 1933
Dyer, 1952

Fallera, 1926
Jampolsky & Hoar, 1954
Jarvis, et al., 1926
Pottinger & Baldwin, 1940
Pugsley, 1942

SEX RATIOS

Data on the sex ratios of king salmon are presented in the following papers. Rutter, 1904b, notes hermaphroditism in the king salmon.

Chamberlain, 1907
Gilbert, 1914a, 1924c
Marr, 1944
Rich, 1922

Snyder, 1931
Stone, 1928a, 1928b, 1929a,
1930b, 1931a

TIME OF SPAWNING MIGRATION

Data on the time of return of king salmon from the ocean to the stream mouths are contained in the following references:

Anon., 1903b	Henry, 1953
Alexander, 1905	Jordan & Starks, 1896
Atkinson, 1955	McHugh, 1915
Babcock, 1916, 1931a	Neave, 1949
Brice, 1898	Redding, et al., 1933
Briggs, 1953	Rich & Holmes, 1929
Chamberlain, 1907	Rivers, 1947
Clark, 1939	Rounsefell & Kelez, 1940
Cobb & Kutchin, 1907	Scofield, 1920
Davidson & Vaughan, 1941	Stone, 1874
Dunn, 1880	Snyder, 1922
Fry & Hughes, 1954	Thompson, 1931
Gilbert, 1895, 1924	Williamson, 1929
Green, 1887	Williamson & Clemens, 1932
Hefford, 1929	

Data on the time fish are observed migrating upstream at any point in its course are contained in the following references:

Anon., 1904b, 1914c, 1916a, 1917, 1931b, 1938a, 1938b, 1939	Cobb, 1910, 1911, 1917, 1921
Abernathy, 1887	Coker, 1922
Aro, 1952	Collins, 1892
Babcock, 1903, 1906, 1907, 1910, 1914, 1916	Crawford, 1908
Baird, 1876	Curtis, 1945
Barin, 1887	Davidson & Vaughan, 1941
Bryant, 1949	Davison, et al., 1954
Bean, 1887b, 1891, 1892, 1894	Edson, et al., 1955
Berg, 1948	Erkkila, et al., 1950
Bigelow & Welsh, 1925	Evermann, 1897, 1905
Bower, 1922, 1925b, 1926, 1927, 1929a, 1930, 1931, 1932, 1933, 1934, 1936, 1938a, 1938b, 1940, 1941	Evermann & Goldsborough, 1907b
Bower & Aller, 1915, 1917b	Evermann & Meek, 1898
Bowers, 1899	Fish, 1948
Bowser, 1909	Foerster, 1935, 1955
Brice, et al., 1898	Foerster & Pritchard, 1935
Burner, 1951	Foskett, 1947a
Carl & Clemens, 1948	Fraser, 1919
California, State of, 1874-1875, 1876-1877, 1886, 1898, 1900, 1952-1954.	Hanson, et al., 1940a
Chamberlain, 1907	Gibson, 1923
Chamberlain & Bower, 1913	Gilbert & Evermann, 1895
Chapman, 1941	Godfrey, et al., 1954
Clark, 1939, 1943	Greene, 1911
Cleaver, 1951	Hatton & Clark, 1942
Clemens, 1946b	Hefford, 1930, 1931, 1932, 1934a, 1934b, 1935, 1936, 1938, 1940, 1941
Clemens, et al., 1938	Hobbs, 1937
	Hoover, 1936
	Hume, 1893
	International North Pacific Fisheries Commission, 1955
	Jordan, 1892, 1896c, 1904a

Jordan & Evermann, 1896
Jordan & Gilbert, 1887
Jordan & Starks, 1896b
Kerr, 1953
Kirkness, et al., 1952, 1953
Kuznetzov, 1928
Leach, 1925, 1926, 1927, 1932
Little, 1898
Novisoff, 1912
Marr, 1944
Marsh & Cobb, 1908, 1910
McDonald, 1894a
McKernan, et al., 1950
McLean, 1945
Milne, 1950b, 1955
Milne, 1913
Moffett, 1949
Moffett & Smith, 1950
Moser, 1899
Murphy & Shapovalov, 1951
Neave, 1943
Needham, et al., 1943
Needham, et al., 1941
O'Malley, 1904, 1920a
Parker & Hanson, 1944
Parker & Kirkness, 1951
Parkhurst, 1950b
Parkhurst, et al., 1950
Popov, 1933
Pritchard, 1940b, 1943c
Radcliffe, 1920
Rathbun, 1894, 1900
Ravenel, 1896a
Rich, 1922, 1942
Rich & Ball, 1929b
Rich & Holmes, 1928
Rutter, 1904b, 1908
Scofield, 1919a, 1919b, 1929
Shebley, 1921
Silliman, 1950
Smith, 1895b, 1898b, 1917
Smoker, 1954
Snyder, 1923, 1931, 1936a
Stone, 1874a, 1874b, 1883a, 1884a
1897
Suckley, 1874
Sumner & Smith, 1940
Tokahisa & Takeshi, 1934
Townsend, 1899, 1904
U.S. Fish and Wildlife Service, 1945
U.S. Foreign Economic Administration, 1945
Van Cleve, 1945
Van Hyning, 1951
Wilcox, 1898

Williamson, 1927
Worth, 1895
Wynne-Edwards, 1947a
Young, 1949

SIZE AT TIME OF RETURN

Data on the size of king salmon at time of return are contained in the following references:

- Anon., 1903, 1918a, 1921a, 1923
 Aro, 1952
 Baievsky, 1926
 Bean, 1887a, 1887b, 1894
 Brice, et al, 1898
 Briggs, 1953
 Burner, 1951
 California, State of, 1894
 Carl, 1939
 Chapman, 1940a
 Clemens, 1932, 1935b, 1939b, 1946b
 Cobb, 1910, 1911, 1917
 Coker, 1922
 Collins, 1892
 Davidson & Vaughan, 1941
 Dymond, 1932
 Evermann, 1896, 1905
 Evermann & Goldsborough, 1907b
 Evermann & Meek, 1898
 Foerster, 1955
 Fraser, 1919, 1921
 Gilbert, 1913b, 1914a, 1924c
 Godfrey, et al., 1954
 Greene, 1911b
 Hanson, et al., 1940a
 Hefford, 1929, 1932, 1934a, 1934b,
 1935, 1936, 1938, 1940, 1941, 1946
 Hoover, 1936
 Hume, 1893
 Jordan, 1892
 Jordan & Evermann, 1896
 Jordan & Gilbert, 1887
 Jordan & Starks, 1896b
 Kirkness, et al., 1952, 1953
 Kuznetsov, 1923
 Locke, 1929
 Marsh & Cobb, 1910
 McDonald, 1895
 McLean, 1945
 Moser, 1899
 Neave, 1939, 1949
 Needham, et al., 1941
 Novisoff, 1912
 O'Malley, 1920a
 Parker & Kirkness, 1951
 Parker, et al., 1952
 Pressey, 1953
 Radcliffe, 1920
 Rathbun, 1900
 Rich, 1940a.
 Rich & Holmes, 1928
 Rutter, 1904b
 Schneer, 1939
 Scofield, 1920b
 Silliman, et al., 1947
 Smiley, 1887a
 Smith, 1895b
 Snyder, 1921a, 1921b, 1922, 1923,
 1924b, 1931
 Stone, 1928a, 1928b, 1930b
 Stone, 1874b, 1876a, 1880, 1883a,
 1884a, 1884c, 1897
 Suckley, 1874
 Tanner, et al., 1890
 Townsend, 1899
 U.S. Fish and Wildlife Service, 1887,
 1940b, 1945
 Van Hyning, 1951
 Wales & Coots, 1955a
 Williamson, 1927
 Williamson & Clemens, 1932

AGE AT TIME OF RETURN

Data on the age of king salmon at time of return are contained in the following references:

- | | |
|-------------------------------------|--|
| Anon., 1937, 1953c, 1955c | International North Pacific Fisheries Commission, 1955 |
| Babcock, 1907, 1908, 1931a | |
| Bean, 1891 | Jordan, 1896c, 1904a |
| Berg, 1948 | Kirkness, et al., 1952, 1953 |
| Bower, 1933 | Kuznetsov, 1928 |
| Bowser, 1913 | Milne, 1955 |
| Briggs, 1953 | Milne, 1913 |
| Carl & Clemens, 1948 | Mottley, 1929 |
| Chamberlain, 1907 | Neave, 1948, 1949, 1951 |
| Cleaver, 1951 | O'Malley, 1920a |
| Clemens, 1935b, 1938b, 1939b, 1946b | Oregon Fish Commission 1931 |
| Cobb, 1917 | Oshima, 1934 |
| Davidson & Shostrom, 1936 | Parker & Kirkness, 1951 |
| Davidson & Vaughan, 1939b, 1941 | Pressey, 1953 |
| Dymond, 1932 | Pritchard, 1940a, 1940b |
| Edson, et al., 1955 | Rich, 1921b, 1922, 1926, 1948 |
| Eigenmann, 1890 | Rich & Holmes, 1929 |
| Evermann, 1897 | Ricker, 1954 |
| Fish, 1948 | Rounsefell & Kelez, 1940 |
| Foerster, 1935, 1943, 1955 | Rutter, 1902, 1904b |
| Foerster & Pritchard, 1935 | Scheer, 1939 |
| Fraser, 1919, 1921 | Scotfield, 1922 |
| Fry & Hughes, 1954 | Smoker, 1954 |
| Gilbert, 1913a, 1913b, 1914a, 1924c | Snyder, 1921a, 1921b, 1922, 1924b, 1931, 1936b, |
| Godfrey, et al., 1954 | Snyder & Scotfield, 1924a |
| Hefford, 1929, 1931 | Stone, 1874b |
| Henry, 1953 | U.S. Fish and Wildlife Service, 1940b, 1945 |
| Hoar, 1951b | |
| Hobbs, 1937 | Williamson & Clemens, 1932 |
| Hoover, 1936 | |

TYPE OF SPAWNING STREAM

Data on the nature of the spawning stream chosen by the king salmon are contained in the following references:

- | | |
|----------------------------|----------------------------|
| Anon., 1904a, 1937 | Davidson & Vaughan, 1941 |
| Babcock, 1931a | Evermann, 1905 |
| Bean, 1891, 1894 | Fish, 1948 |
| Brice, et al., 1898 | Foerster, 1935 |
| Bryant, 1949 | Foerster & Pritchard, 1935 |
| Burner, 1951 | Greene, 1911b |
| Chamberlain, 1907 | Hatton & Clark, 1942 |
| Clemens, 1946b, 1951, 1953 | Hobbs, 1937 |
| Clark, 1943 | Hume, 1893 |
| Curtis, 1945 | Jordan, 1904a |
| | Jordan & Evermann, 1896 |

Jordan & Gilbert, 1887
Kirkness, et al., 1952
Kuznetzov, 1928
McDonald, 1894a
Moffett, 1949
Murphy & Shapovalov, 1951
Neave, 1949
Neave & Wickett, 1953
O'Malley, 1904, 1920a
Parker & Hanson, 1944

Pritchard, 1934e, 1940b, 1949
Rathbun, 1900
Rich, 1948
Rutter, 1904b
Scheer, 1939
Stone, 1884a
Sumner & Smith, 1940
U.S. Fish and Wildlife Service, 1940b
Van Cleve, 1945
Wynne-Edwards, 1947a

DISTANCE TRAVELED UPSTREAM

The following references mention the distance traveled upstream by the king salmon:

Anon., 1903b
Babcock, 1931a
Baird, 1876
Bean, 1887b, 1891, 1894
Brice, et al., 1898
Bryant, 1949
Burner, 1951
California, State of, 1870-1871
Carl & Clemens, 1948
Clemens, 1935b, 1953
Evermann, 1905
Evermann & Goldsborough, 1907b
Foerster & Pritchard, 1935
Gilbert, 1924c
Gilbert & Evermann, 1895
Gilbert & O'Malley, 1921
Green, 1887
Greene, 1911b
Hallock, et al., 1952
Hoover, 1936

International North Pacific Fisheries Commission, 1955
Jordan, 1892, 1896c, 1904a
Jordan & Evermann, 1896
Jordan & Gilbert, 1887
Kuznetzov, 1928
Locke, 1929
McDonald, 1895
O'Malley, 1920a
Redding, et al., 1933
Scheer, 1939
Smith, 1895b, 1898b
Suckley, 1874
Stone, 1874b, 1884a
Sumner & Smith, 1940
Townsend, 1899
Van Cleve, 1945
Wynne-Edwards, 1946, 1947a, 1952

NATURE OF SPAWNING SITE

Notes regarding the nature of the spawning site of king salmon are contained in the following references:

Briggs, 1953
Bower, 1925b
Burner, 1951
Chamberlain, 1907
Crawford, 1908
Curtis, 1945

De Bellesme, 1896
Evermann, 1896, 1905
Foerster, 1935
Foskett, 1947a
Hallock, et al., 1952
Hanson, 1940

Hickman, 1932
 Hobbs, 1937
 Hoover, 1936
 Jordan, 1892, 1896c, 1904a
 Jordan & Evermann, 1896
 Leach, 1922
 Moser, 1899
 O'Malley, 1920a
 Parker, et al., 1952

Pritchard, 1940b
 Redding, et al., 1933
 Rich, 1948
 Rounsefell & Kelez, 1940
 Rutter, 1902
 Sumner & Smith, 1940
 U.S. Fish and Wildlife Service, 1945
 Van Cleve, 1945
 Worth, 1895

SPAWNING PERIOD

Data on the spawning period of the king salmon are contained in the following references:

Anon., 1903b, 1949b, 1953c,	McLean, 1945
Ayson, 1910	Milner, 1874
Babcock, 1914, 1915, 1916, 1927	Moffett, 1949
Barin, 1887	Moffett & Smith, 1950
Berg, 1948	Moser, 1899
Birchall & Hickman, 1914	Motherwell, 1934
Bower, 1927, 1929a	Neave, 1943, 1949
Brice, et al., 1898	Needham, et al., 1941
Bryant, 1949	O'Malley, 1904, 1920a
Chamberlain, 1907	Parker & Hanson, 1944
Chapman, 1943	Parker, et al., 1952
Clark, 1943	Rathbun, 1900
Clemens, 1939b, 1946b	Ravenel, 1896a, 1898, 1899, 1900, 1901, 1902
Craig & Hacker, 1940	Redding, 1876,
Craig & Townsend, 1946	Redding, et al., 1933
Davidson & Vaughan, 1941	Rich, & Holmes, 1928
De Bellesme, 1896	Rounsefell & Kelez, 1940
Dymond, 1932	Rutter, 1904b, 1908
Evermann, 1896, 1897	Smith, 1899
Evermann & Meek, 1898	Stone, 1914, 1915a, 1915b, 1916b, 1917a, 1917b, 1918a, 1919, 1921a, 1922b, 1923a, 1924a, 1924b, 1925a, 1925b, 1927a, 1928a, 1928b, 1929a, 1929b, 1930a, 1930b, 1931a, 1931b, 1932a, 1932b
Fish, 1948	Stone, 1897, 1874b, 1876a, 1876b, 1878b, 1879a, 1880, 1883a, 1884a
Gibson, 1923, 1922, 1925	Sumner & Smith, 1940
Gilbert & O'Malley, 1921	Van Cleve, 1945
Hanson, et al., 1940	Worth, 1895
Hickman, 1921, 1922, 1924, 1925, 1926, 1927, 1928, 1929, 1930, 1931, 1932	Wynne-Edwards, 1947a
Hickman & Collison, 1920	
Hobbs, 1937	
Hoover, 1936	
Hubbs, 1946,	
Hume, 1893	
Jordan & Evermann, 1896	
Kuznetsov, 1928	
Leach, 1922, 1923, 1924, 1928, 1930, 1931, 1932	
Locke, 1929	
Lockington, 1880	
Marsh & Cobb, 1907, 1908, 1911	

SEXUAL DIMORPHISM

Data on sexual dimorphism in king salmon are mentioned in the following references:

- | | |
|--------------------------------|----------------------------------|
| Babcock, 1931a | Jordan, 1892, 1896c, 1904a, 1907 |
| Bean, 1891, 1894 | Jordan & Evermann, 1896 |
| Brett & Fritchard, 1946b | Jordan & Gilbert, 1887 |
| Brice, et al., 1898 | Kuznetzov, 1938 |
| Briggs, 1953 | Locke, 1929 |
| Carl & Clemens, 1948 | Lockington, 1880 |
| Chamberlain, 1907 | Marr, 1944 |
| Clemens, 1946b | O'Malley, 1904, 1920a |
| Davidson & Vaughan, 1941 | Rutter, 1902, 1904b |
| Evermann & Goldsborough, 1907b | Shapovalov, 1947 |
| Gilbert, 1924c | Stone, 1874b, 1884a, 1897 |
| Gilbert & O'Malley, 1921 | Suckley, 1874 |
| Hoover, 1936 | |

SPAWNING BEHAVIOR

Data on the spawning behavior of king salmon are contained in the following references:

- | | |
|----------------------------|-------------------------|
| Anon., 1953c | Foerster, 1935 |
| Babcock, 1931a | Hobbs, 1937 |
| Bean, 1894 | Hoover, 1936 |
| Berg, 1948 | Jordan, 1892, 1896c |
| Brice, et al., 1898 | Jordan & Evermann, 1896 |
| Briggs, 1953 | Jordan & Gilbert, 1887 |
| Burner, 1951 | McLean, 1945 |
| Chamberlain, 1907 | Moser, 1899 |
| Crawford, 1908 | Rutter, 1902, 1904b |
| Evermann, 1896, 1897, 1905 | Stone, 1874b, 1884a |

POST-SPAWNING BEHAVIOR

Data on the post-spawning behavior of king salmon are noted in the following references:

- | | |
|-----------------------|----------------------------|
| Bean, 1891, 1894 | Hoover, 1936 |
| Brice, et al., 1898 | Hume, 1893 |
| Briggs, 1953 | Jordan, 1892, 1896c, 1904a |
| Dunn, 1880 | Jordan & Evermann, 1896 |
| Evermann, 1897 | Locke, 1929 |
| Evermann & Meek, 1898 | Oshima, 1934 |
| Green, 1887 | Parker & Hanson, 1944 |
| Greene, 1911b | Rathbun, 1900 |
| Gilbert, 1914a | Rutter, 1902, 1904b |
| Hobbs, 1937 | Stone, 1874b, 1897 |

Data on the time of hatching of king salmon are included in the following references:

Anon., 1916b	Moffett & Smith, 1950
Carl & Clemens, 1948	Mottley, 1929
Crawford, 1908	Redding, et al., 1933
Davidson & Vaughan, 1939b	Rich, 1922, 1948
De Bellesme, 1896	Rivers, 1947
Evermann, 1897	Rutter, 1902
Evermann & Leek, 1898	Scofield, 1898a, 1898b
Foerster & Pritchard, 1935	Smith, 1898a
International North Pacific Fisheries Commission, 1955	Smith, 1915
Jordan, 1896c	Stone, 1874b
Jordan & Evermann, 1896	U.S. Fish and Wildlife Service, 1945
Leach, 1922	Van Cleve, 1945
Marsh & Cobb, 1910	Williamson, 1927

BEHAVIOR OF FRY AND FINGERLINGS

Data on the behavior of the fry and fingerlings of king salmon are included in the following references:

Anon., 1953c	MacKimon & Brett, 1955
Babcock, 1904a, 1904b	Moffett & Smith, 1950
Black, 1951b	Moser, 1899
California, State of, 1900	Murphy & Shapovalov, 1951
Chamberlain, 1907	Pritchard, 1940b
Clemens, 1951, 1953	Rich, 1948
Davidson & Vaughan, 1941	Rutter, 1902, 1904b
Foerster, 1955	Scofield, 1898b, 1900
Fraser, 1919	Smith, 1898a, 1899
Hallock, et al., 1952	Stone, 1884a, 1897
Hatton & Clark, 1942	Wales & Coots, 1955a
Kerr, 1953	

TIME YOUNG SPEND IN FRESHWATER

Data on the time spent in freshwater by the silver salmon are contained in the following references:

Anon., 1948, 1952	Carl & Clemens, 1948
Babcock, 1904a, 1908, 1931a	Chamberlain, 1907
Bean, 1894	Cleaver, 1951
Bower, 1934	Clemens, 1935b, 1946b, 1951, 1953
Bowser, 1913	Clemens, et al., 1938
California, State of, 1900	Cobb, 1921

Craig & Townsend, 1946
 Curtis, 1945
 Davidson & Vaughan, 1939b, 1941
 Davis, 1953
 Earp, et al., 1953
 Evermann, 1897
 Evermann & Meek, 1898
 Foerster & Pritchard, 1935
 Fraser, 1916, 1919
 Gilbert, 1913a, 1913b, 1914a, 1924c
 Hallock, et al., 1952
 Henry, 1953
 Hourston, et al., 1955
 Hubbs, 1946
 Hume, 1893
 Kerr, 1953
 Locke, 1929
 MacKimon & Brett, 1955
 McDonald, 1894c, 1895
 McKernan, et al., 1950

Milne, 1913
 Moffett & Smith, 1950
 Mottley, 1929
 Murphy & Shapovalov, 1951
 Neave, 1948, 1949, 1951
 Neave & Wickett, 1953
 Needham, et al., 1941
 O'Malley, 1920a
 Oshima, 1934
 Parker & Kirkness, 1951
 Pritchard, 1940b
 Redding, et al., 1933
 Rich, 1922, 1926, 1948,
 Ricker, 1954
 Rutter, 1904b, 1908
 Scheer, 1939
 Scofield, 1898a, 1898b
 Smith, 1898a
 Smoker, 1954
 Snyder, 1922, 1924b
 U.S. Fish and Wildlife Service, 1945
 Van Cleve, 1945
 Wales & Coots, 1955a

DATE OF SEAWARD MIGRATION

Statements on the date of seaward migration of young king salmon
 are contained in the following references:

Babcock, 1904a, 1904b, 1905
 Bean, 1894
 Bower, 1925b, 1938a
 California Fish and Game, 1932
 Chamberlain, 1907
 Clemens, 1951
 Clemens, et al., 1938
 Davidson & Vaughan, 1941
 Davison, et al., 1954
 Erkkila, et al., 1950
 Evermann, 1897
 Fish, 1948
 Foerster & Pritchard, 1935
 Fraser, 1919
 Gharrett & Hodges, 1950
 Gilbert, 1914a
 Greene, 1911b
 Hallock, et al., 1952
 Hanson, et al., 1940
 Hatton & Clark, 1942
 Hubbs, 1946
 International North Pacific Fisheries
 Commission, 1955

Johnson, et al., 1948
 MacKimon & Brett, 1955
 Marr, 1944
 Moffett, 1949
 Moffett & Smith, 1950
 Murphy & Shapovalov, 1951
 Neave, 1948
 Needham, et al., 1943
 Needham, et al., 1941
 Newcomb, 1948
 Oshima, 1934
 Parker, et al., 1953
 Pritchard, 1940b
 Rich, 1922, 1948
 Rivers, 1947
 Rounsefell & Kelez, 1940
 Rutter, 1902, 1904b
 Scofield, 1898a, 1898b, 1900
 Smith, 1899
 Snyder, 1922, 1931
 Stone, 1874b
 Van Cleve, 1945
 Wales & Coots, 1955a

SIZE AT TIME OF SEAWARD MIGRATION

Data on the size of young king salmon at the time of seaward migration are contained in the following references:

- | | |
|-----------------------------|--------------------------|
| Anon., 1915c | Hanson, et al., 1940 |
| Babcock, 1903, 1904a, 1904b | Hatton & Clark, 1942 |
| Chamberlain, 1907 | Hourston, et al., 1955 |
| Chamberlain & Bower, 1913 | McDonald, 1894c, 1895 |
| Craig & Townsend, 1946 | Milne, 1913 |
| Curtis, 1945 | Moffett, 1949 |
| Davidson & Vaughan, 1941 | Moffett & Smith, 1950 |
| Davison, et al., 1954 | Needham, et al., 1943 |
| Erkkila, et al., 1950 | Rich, 1948 |
| Foerster & Pritchard, 1935 | Rounsefell & Kelez, 1940 |
| Fraser, 1919 | Scofield, 1898a |
| Gharrett, & Hodges, 1950 | Snyder, 1922 |
| Gilbert, 1913b | Van Cleve, 1945 |
| Gilbert & Evermann, 1895 | |
| Hallock, et al., 1952 | |

MOVEMENTS IN THE OCEAN

Data on the movements in the ocean of the king salmon are contained in the following references:

- | | |
|---|-----------------------------|
| Anon., 1904c, 1924 | Jordan, 1896c, 1904a, 1904b |
| Babcock, 1903, 1914, 1931a | Jordan & Evermann, 1896 |
| Barnaby, 1952 | Manzer, 1946 |
| Bean, 1891, 1894 | Mathisen, 1950 |
| California Fish and Game, 1932 | Mottley, 1929 |
| Chamberlain, 1907 | Murphy & Shapovalov, 1951 |
| Clemens, 1935b | Rathbun, 1900 |
| Clark & Hatton, 1942 | Rich, 1935c, 1939 |
| Cobb, 1917, 1921 | Rich & Holmes, 1928 |
| Davidson, 1940c | Rounsefell & Kelez, 1940 |
| Davidson & Hutchinson, 1940 | Rutter, 1904b |
| Davidson & Vaughan, 1941 | Scheer, 1939 |
| Fry & Hughes, 1951 | Scofield, 1922 |
| Gilbert, 1895 | Snyder, 1931 |
| Hallock, et al., 1952 | Stone, 1874b |
| Hanson, et al., 1940 | Townsend, 1904 |
| Hubbs, 1946 | Verhoeven, 1952 |
| International North Pacific Fisheries
Commission, 1955 | Williamson, 1927 |

MARKING OR TAGGING AND RECAPTURE DATA

Data on marking or tagging and recapture of king salmon are contained in the following references:

- | | |
|--|---|
| Anon., 1903b, 1904c, 1916b, 1924, 1937, 1952, 1953c | Marsh & Cobb, 1907, 1908, 1911 |
| Babcock, 1914 | McKernan, et al., 1950 |
| Bowser, 1913 | Milne, 1955 |
| Brett & pritchard, 1946b | Neave, 1951 |
| California, State of, 1904, 1950-1952, 1952-1954 | Newcomb, & Mathesin, 1946 |
| Chamberlain, 1907 | O'Malley, 1924 |
| Clark & Hatton, 1942 | Oregon Fish Commission, 1931 |
| Curtis, 1945 | Parker & Hanson, 1944 |
| Clemens, 1928, 1929, 1932, 1939c | Parker & Kirkness, 1951 |
| Clemens, et al., 1939 | Parker, et al., 1952 |
| Coker, 1922 | Powers, 1939 |
| Erkkila, et al., 1950 | Pritchard, 1931b, 1932b, 1934c, 1934e, 1940b, 1945c |
| Fish, 1948 | Rich, 1935a, 1935c, 1939, 1941 |
| Foerster, 1941, 1942, 1943, 1946a, 1947a | Rich & Holmes, 1928 |
| Fry & Hughes, 1951 | Rich & Morton, 1930 |
| Gilbert & Rich, 1927 | Rounsefell & Kelez, 1940 |
| Godfrey, et al., 1954 | Rutter, 1902, 1904b |
| Greene, 1911b | Scheer, 1939 |
| Hefford, 1931, 1934b, 1936 | Silliman, 1948a, 1948b |
| Higgins, 1928, 1929 | Snyder, 1921b, 1922, 1923, 1928, 1931 |
| Holmes, 1928 | U.S. Fish and Wildlife Service, 1939d |
| International North Pacific Fisheries Commission, 1955 | Van Cleve, 1942-1944 |
| Jordan, 1892, 1896c, 1904b | Van Hynning, 1951 |
| Kauffman, 1951 | Williamson, 1927, 1929 |
| Kirkness, et al., 1952, 1953 | Williamson & Clemens, 1932 |

HOMING INSTINCT

Discussions or data concerning the homing instinct in king salmon are contained in the following references:

- | | |
|-----------------------------------|--|
| Anon., 1903b, 1937 | Holmes, 1928 |
| Babcock, 1931a | Hume, 1893 |
| Brett & MacKinnon, 1954 | International North Pacific Fisheries Commission, 1955 |
| Chamberlain, 1907 | Jordan, 1892, 1896c, 1904b |
| Clemens, 1938b, 1939c, 1951, 1953 | Jordan & Gilbert, 1887 |
| Crawford, 1907 | Marsh & Cobb, 1911 |
| Davidson & Vaughan, 1939b, 1941 | Oregon Fish Commission, 1931 |
| Foerster, 1941 | Pritchard, 1940b |
| Fraser, 1919 | Powers, 1939 |
| Gilbert & Rich, 1927 | Rich, 1939, 1948 |
| Higgins, 1928 | |

Rich & Ball, 1931
Rich & Holmes, 1928
Rounsefell & Kelez, 1940
Rutter, 1902, 1904b
Scheer, 1939

Snyder & Scofield, 1924a
U.S. Fish and Wildlife Service, 1945
Verhoeven, 1952
White & Huntsman, 1938

GROWTH RATES

Remarks on growth rates of the king salmon are included in the following references:

Berg, 1948
Besana, 1910
Chamberlain, 1907
De Bellesme, 1896
Fraser, 1916, 1917b, 1919, 1921
Hatton & Clark, 1942
Hefford, 1934b, 1936
Hobbs, 1937
International North Pacific Fisheries
Commission, 1955

Marr, 1944
Parker & Kirkness, 1951
Rich, 1922, 1926
Rounsefell & Kelez, 1940
Rutter, 1902
Scofield, 1898a, 1898b, 1900
Snyder, 1921b, 1922, 1923
Van Hynning, 1951

FOOD AND FEEDING HABITS

Comments on the food and/or feeding habits of king salmon are included in the following references:

Anon., 1952, 1953c, 1955c
Babcock, 1931a
Barnaby, 1952
Bean, 1891, 1894
Bowser, 1913
Carl & Clemens, 1948
Chamberlain, 1907
Chapman, 1936
Chapman & Quistorff, 1938
Clemens, 1935b, 1939b, 1951, 1953
Clemens, et al., 1938
Cobb, 1910, 1917, 1921
Fish, 1939
Foerster, 1941, 1942, 1955
Foskett, 1951b
Fraser, 1916, 1919, 1923
Gilbert, 1913b, 1914a
Greene, 1911b, 1915c
Heg, & Van Hynning, 1951
Holmes, 1928
Hoover, 1936
International North Pacific Fisheries
Commission, 1955

Jordan, 1894
Kendall, 1913
Locke, 1929
Lowe, 1936
Maeda, 1955
Marsh & Cobb, 1908
Pritchard & Tester, 1939, 1941, 1942,
1944
Rich, 1921a, 1948
Ricker, 1954
Rounsefell & Kelez, 1940
Rutter, 1902, 1904b
Scofield, 1898b, 1900
Senter, 1940
Silliman, 1941
Smith, 1895b
Snyder, 1922, 1924b
Snyder & Scofield, 1924a
Stone, 1874b, 1884a, 1897
Sumner & Smith, 1940
Thompson, 1931
U.S. Fish and Wildlife Service, 1945
Williamson, 1927, 1930
Withler, 1948

PARASITES AND DISEASES

Parasites and diseases infecting the king salmon are reported by:

Bean, 1891	Jordan, 1892, 1896c, 1904
Carl, 1939	Linton, 1941
Clemens, 1939	Rutter, 1902
Davis, 1927a, 1927b, 1953	Smith & Quistorff, 1940
Davison, et al., 1954	Stone, 1874
Earp, et al., 1953	Jales & Wolf, 1955b
Eguchi, 1934	Ward, 1908
Fallera, 1926	Wardle, 1932
Fish, 1939	Wilson, 1916
Guberlet, 1926	
Haderlie, 1953	
Johnson & Bruce, 1952	

INTRODUCTIONS AND ACCLIMATIZATION

For data on the introduction and acclimatization of king salmon into various exotic waters, see subject section under this category.

EGG COUNTS

The following references contain data on the number of eggs produced by king salmon:

Aro, 1952	Kuznetzov, 1928
Bean, 1892	McGregor, 1922b, 1923a, 1923b
Bower, 1938a	Moffett & Smith, 1950
Bryant, 1923	Rich, 1926, 1940b
Foerster, 1955	Smiley, 1837a
Foerster & Pritchard, 1936	Snyder, 1921a
Hanson, 1940	Stone, 1897
Hanson, et al., 1940	

Material on the relative abundance of king salmon is contained in the following references. Examination of the specific entries will indicate whether the data are in the form of catch records or as counts of migrant adults.

- | | |
|---|--------------------------------------|
| Anon., 1903b, 1915b, 1931a, 1938a, | Mathisen, 1950 |
| 1952, 1953c, 1955c, 1879, 1880 | McKernan, et al., 1950 |
| Aro, 1952 | Milne, 1913 |
| Atkinson, 1955 | Moser, 1899 |
| Babcock, 1910 | Neave, 1939, 1951 |
| Bryant & Parkhurst, 1950 | Needham, et al., 1943 |
| California, State of, 1874-1875, 1877, | Needham, et al., 1941 |
| 1900, 1902-1952, 1929-1952, 1952-1954 | Newcomb & Matheson, 1946 |
| Carl, 1939 | Oregon Fish Commission, 1941, 1943, |
| Chapman, 1940b | Parker, et al., 1952, 1953 1949 |
| Edson, et al., 1955 | Pressey, 1953 |
| Ellis, et al., 1937 | Fritchard, 1943c, 1949 |
| Foerster, 1941, 1942, 1943, 1947a | Rich, 1935c, 1941, 1942, 1943, 1940b |
| Fry & Hughes, 1951 | Rich & Ball, 1929b, 1931, 1935 |
| Gharrett & Hodges, 1950 | Rounsefell & Kelez, 1940 |
| Godfrey, et al., 1954 | Schoning, et al., 1951 |
| Hanson, 1940 | Silliman, 1948a |
| Hanson, et al., 1940 | Smiley, 1884d |
| Hefford, 1929, 1930, 1931, 1932, 1934a, | Smith, 1895b |
| 1934b, 1935, 1936, 1938, 1940, 1941, | Smoker, 1954 |
| 1946 | Snyder, 1931 |
| Henry, 1953 | U.S. Fish and Wildlife Service, |
| Holmes, 1940 | 1931-1940, 1938-1940 |
| Hobbs, 1937 | Van Cleve, 1942-1944 |
| International North Pacific Fisheries | Van Hynning, 1951 |
| Commission, 1955 | Washington, State of, 1935-1945 |
| Johnson, et al., 1948 | Wilcox, 1898 |
| Kauffman, 1951 | |
| Kuznetsov, 1928 | |
| Marine Fisheries Branch (Staff), 1954 | |

Oncorhynchus nerka (Walbaum), commonly called the sockeye, red, blue-back salmon, or redfish, is distributed throughout the North Pacific Ocean from Japan to California. It is not known to enter the Arctic Ocean. A land-locked form occurs throughout the range of this species. Subspecific rank is usually assigned to the land-locked forms, the most common of which is Oncorhynchus nerka kennerlyi (Suckley). In the North American literature, this land-locked subspecies is commonly called the kokanee or little redfish, the former name being by far the more popular.

DESCRIPTION - COUNTS AND MEASUREMENTS

The following papers present descriptive matter on the sockeye salmon (including the kokanee) and/or counts and measurements of any of its systematic characteristics:

Babcock, 1905	Jordan & Gilbert, 1882
Bean, 1887b	Jordan & Evermann, 1896
Berg, 1948	Kimsey, 1951
Brice, et al., 1898	Lockington, 1880
Carl & Clemens, 1948	O'Malley, 1920a
Chamberlain, 1907	Parker, et al., 1952
Clemens, 1935b, 1946b	Pritchard & Cameron, 1940
Crawford, 1925	Rathbun, 1900
Curtis & Fraser, 1948	Shapovalov, 1947
Dymond, 1936	Snyder, 1931
Evermann, 1897, 1905	Stone, 1897
Foerster, 1929a, 1935	Suckley, 1874
Foerster & Pritchard, 1935	Taft, 1937b
Gilbert, 1895	Taguchi, 1948
Hikita, 1953	Taliev, 1932
Jordan, 1896c, 1904a, 1907, 1923	Williamson, 1927

FIGURES AND ILLUSTRATIONS

The following references contain drawings and/or illustrations of the sockeye salmon (including the kokanee):

Bean, 1891	Cobb, 1917
Berg, 1948	Crawford, 1925
Brice, et al., 1898	Curtis & Fraser, 1948
California, State of, 1904	Evermann, 1897
Carl & Clemens, 1948	Evermann & Goldsborough, 1907b
Chamberlain, 1907	Foerster & Pritchard, 1935
Clemens, 1946b	Hikita, 1953
	Hudson, 1917

Jones, 1915
 Jordan, 1884, 1896c
 Jordan & Evermann, 1896
 Kimsey, 1951
 Marr, 1944
 Moser, 1899
 Nelson & Abegglen, 1955

Nomura, 1953
 O'Malley, 1920a
 Roedel, 1948
 Shapovalov, 1947
 Stone, 1897
 Wilcox, 1902
 Williamson, 1927

LIFE COLORS

Often natural populations of fishes have distinctive color patterns.

To aid in racial analysis, an attempt was made to isolate data on life colors. The following references contain statements referring to the color of the sockeye salmon (including the kokanee):

Babcock, 1917, 1925, 1926, 1927, 1931a
 Bean, 1891, 1894
 Berg, 1948
 Brice, et al., 1898
 Briggs, 1953
 Carl & Clemens, 1948
 Chamberlain, 1907
 Clemens, 1935b, 1946b
 Cobb, 1911, 1917, 1921
 Crawford, 1925
 Evermann, 1896, 1897, 1905
 Foerster, 1935
 Foerster & Pritchard, 1935
 Gilbert & O'Malley, 1921
 Jordan, 1892, 1896c, 1904a, 1907
 Jordan & Evermann, 1896
 Jordan & Gilbert, 1882, 1887
 Locke, 1929

Lockington, 1880
 Marsh & Cobb, 1908
 O'Malley, 1904, 1920a
 Ricker, 1938b, 1940
 Roedel, 1948, 1953a
 Rutter, 1904b
 Schultz, 1935
 Shapovalov, 1947
 Snyder, 1931
 Suckley, 1874
 Taft, 1937b
 Williamson, 1927

RELATIONSHIPS

The following references contain data on the relationships of sockeye salmon (including the kokanee) to other species. Distinctions employed in keys are included in this category.

Babcock, 1931a
 Berg, 1948
 Burner, 1951
 Chamberlain, 1907
 Clemens, 1935b, 1946b
 Evermann, 1897
 Foerster, 1947b
 Foerster & Pritchard, 1935
 Gill, 1862
 Jordan, 1916, 1923
 Jordan & Evermann, 1896
 Jordan & Gilbert, 1882

Kobayasi, 1955
 Locke, 1929
 Nomura, 1953
 Ricker, 1938b
 Schultz, 1934
 Shapovalov, 1947
 Snyder, 1931
 Suckley, 1874
 Taft, 1937b

RACIAL ANALYSIS

The following papers contain comments or data upon the races or populations of the sockeye salmon (including the kokanee):

- | | |
|--|-------------------------|
| Andrekson & Foskett, 1950a | Jordan, 1904b |
| Babcock, 1905, 1925, 1927, 1931a | Killick, 1955 |
| Bower, 1933, 1934 | Kirkness, et al., 1953 |
| Chamberlain, 1907 | Marr, 1944 |
| Chamberlain & Bower, 1913 | McConnell & Brett, 1946 |
| Chapman & Quistorff, 1938 | "ilne, 1955 |
| Clemens, 1938a, 1939a, 1940a, 1941, | Milne, 1917 |
| 1943, 1944, 1946a, 1947, 1948, 1952 | Moser, 1899 |
| Clemens & Clemens, 1926, 1927, 1928, | O'Malley & Rich, 1920 |
| 1929, 1930, 1931, 1932a, 1933, 1934, | Parker & Kirkness, 1951 |
| 1935, 1936, 1937 | Parker, et al., 1952 |
| Craigie, 1926 | Powers, 1941 |
| Dunlop, 1924 | Radcliffe, 1928 |
| Evermann & Goldsborough, 1907b | Rathbun, 1900 |
| Foerster, 1929a, 1946b | Rich, 1925a |
| Foskett, 1951a, 1952a, 1954, 1955b | Rich & Ball, 1929b |
| Fraser, 1916, 1921 | Ricker, 1940 |
| Gilbert, 1913b, 1914b, 1915, 1916, 1918, | Royal, 1951 |
| 1919, 1920, 1922, 1923, 1924a, 1924c, | Schaefer, 1951 |
| 1925 | Scheer, 1939 |
| Gilbert & Rich, 1927, 1929 | Smith, 1899 |
| Higgins, Elmer, 1932 | Taguchi, 1948 |
| Holmes, 1928, 1934 | Taliev, 1932 |
| International North Pacific Fisheries | Thompson, 1945b |
| Commission, 1955 | Verhoeven, 1952 |
| Jensen, 1953 | Williamson, 1927 |

ANATOMY AND PHYSIOLOGY

Included within this category are references concerning the anatomy, histology, osteology (including sub-fossil finds) and physiology of the sockeye salmon and the kokanee.

- | | |
|---------------------------|-------------------------|
| Bailey, 1937 | Hoar, 1953 |
| Black, 1953 | Holmes, 1928 |
| Brett, 1952b | Jordan, 1904a |
| Brett & MacKinnon, 1952 | Kendall, 1922 |
| Chapman, 1938 | Kobayashi & Yuki, 1954b |
| Coker, 1922 | Nomura, 1953 |
| Davidson & Shostrom, 1936 | Palmer, et al., 1954 |
| Foerster, 1929d | Powers, 1939 |
| Greene, 1911b | Reagan, 1917 |
| | Weisel, 1947 |

Data on the biochemistry of sockeye salmon are presented in the following papers:

Bailey, 1952 Brocklesby, 1940
 Brocklesby & Denstedt, 1933
 Fallera, 1926
 Jarvis, et al., 1926

Pottinger & Baldwin, 1940
 Pugsley, 1942
 Riddell, 1936b

SEX RATIOS

Data on the sex ratios of sockeye salmon (including the kokanee) are presented in the following papers:

Chamberlain, 1907
 Gibson, 1930, 1931
 Gilbert, 1914a, 1914b, 1915, 1916,
 1920, 1922, 1923, 1924a, 1924c,
 1925

Marr, 1944
 Robertson, 1928
 Snyder, 1931
 Stone, 1928a, 1928b, 1929a,
 1930b, 1931a

TIME OF SPAWNING MIGRATION

Data on the time of return of sockeye salmon from the ocean to the stream mouths are contained in the following references:

Atkinson, 1955	Gilbert, 1895, 1924
Babcock, 1918, 1931a	Jordan & Starks, 1896
Bolton, 1930	McHugh, 1915
Brice, 1898	Neave, 1949
Briggs, 1953	Rounsefell & Kelez, 1940
Chamberlain, 1907	Royal, 1951
Cobb & Kutchin, 1907	Thompson, 1931

Data on the time fish are observed migrating upstream at any point in its course are contained in the following references:

Anon., 1931b, 1938a	Evermann & Goldsborough, 1907b
Aro, 1952	Evermann & Meek, 1898
Babcock, 1903, 1906, 1907, 1910,	Fish, 1948
1914, 1918, 1921, 1922, 1923, 1929,	Foerster, 1929a, 1935, 1955
1930, 1931	Foerster & Fritchard, 1935
Barin, 1887	Foskett, 1947a
Barnaby, 1944	Fraser, 1919
Bean, 1887b, 1891, 1894	Gibson, 1923
Berg, 1948	Gilbert, 1922, 1923, 1924a
Bower, 1920a, 1920b, 1922, 1923, 1925a,	Godfrey, et al., 1954
1925b, 1926, 1927, 1929a, 1929b, 1930,	Greene, 1911b
1931, 1932, 1933, 1934, 1935, 1936,	Handa, 1934
1938a, 1938b, 1940	Higgins, 1940
Bower & Aller, 1915, 1917a, 1917b, 1919	Hobbs, 1937
Bower & Fassett, 1914	Hume, 1893
Bowers, 1899.	Hunter, 1948, 1949a
Bowser, 1909	International North Pacific Fisheries
Brett & McConnell, 1950	Commission, 1955
Brett & Pritchard, 1946a	Jordan, 1884, 1892, 1896c, 1904a
Brice, et al., 1898	Jordan & Evermann, 1896
British Columbia, 1941	Jordan & Gilbert, 1887
Burner, 1951	Jordan & Starks, 1896b
Carl & Clemens, 1948	Killick, 1955
Chamberlain, 1907	Kirkness, et al., 1952, 1953
Chamberlain & Bower, 1913	Kuznetsov, 1928
Chapman, 1941	Leach, 1927, 1932
Cleaver, 1951	Marr, 1944
Clemens, 1946	Marsh & Cobb, 1908, 1910
Clemens, et al., 1938	McDonald, 1894a
Cobb, 1911, 1917, 1921	Milne, 1950b, 1955
Coker, 1922	Milne, 1913, 1917
Craigie, 1926	Noser, 1899, 1902
Crawford, 1908	Novisoff, 1912
Davidson, 1940a	O'Malley, 1904, 1920a
Dombroski, 1952	Parker & Kirkness, 1951
Evermann, 1897	Parkhurst, 1950b
	Popov, 1933

Pritchard & Cameron, 1940
 Radcliffe, 1920
 Rathbun, 1894, 1900
 Rich, 1942
 Rich & Ball, 1929b
 Ricker, 1947
 Ricker & Robertson, 1935
 Royal, 1951
 Rutter, 1904b
 Shapovalov & Taft, 1954
 Smith, 1917, 1900

Smoker, 1954
 Snyder, 1931
 Stone, 1897
 Thompson, 1942
 Tokahisa & Takeshi, 1934
 U.S. Fish and Wildlife Service, 1924,
 1945
 U.S. Foreign Economic Administration,
 1945
 Ward, 1920a, 1920b
 Wilcox, 1898
 Williamson, 1927
 Wynne-Edwards, 1947a

Entries specifically concerned with the kokanee, or land-locked

sockeye, are as follows:

Babcock, 1903
 Carl & Clemens, 1948
 Chamberlain, 1907
 Clemens, 1946b
 Clemens, et al., 1938
 Curtis & Fraser, 1948
 Evermann, 1897

Evermann & Meek, 1898
 Foerster & Pritchard, 1935
 Foskett, 1947a
 Jordan, 1884, 1892, 1896c, 1904a
 Kinsey, 1951
 Parkhurst, 1950b
 Wynne-Edwards, 1947a

SIZE AT TIME OF RETURN

Data on the size of sockeye salmon at time of return are contained

in the following references:

Andrekson, 1950b
 Andrekson & Foskett, 1950a
 Aro, 1952
 Babcock, 1918
 Bailevsky, 1926
 Bean, 1887b, 1894, 1898
 Briggs, 1953
 Burner, 1951
 Chapman, 1940a
 Clemens, 1935b, 1938a, 1940a, 1941,
 1942, 1943, 1944, 1946a, 1946b, 1947,
 1948, 1950
 Clemens & Clemens, 1926, 1927, 1928, 1929,
 1930, 1931, 1932a, 1933, 1934, 1935,
 1936, 1937
 Cobb, 1911, 1917
 Coker, 1922
 Dombroski, 1952, 1954
 Evermann & Goldsborough, 1907b
 Foerster, 1929a, 1929b, 1955
 Foerster & Pritchard, 1941
 Foskett, 1951a, 1952a, 1953, 1954, 1955b
 Fraser, 1919, 1921

Gilbert, 1913b, 1914a, 1914b, 1915,
 1916, 1918, 1919, 1920, 1922, 1923,
 1924a, 1924c, 1925
 Godfrey, et al., 1954
 Greene, 1911b
 Holmes, 1934
 Hume, 1893
 Jordan, 1884, 1892
 Jordan & Evermann, 1896,
 Jordan & Gilbert, 1887
 Jordan & Starks, 1896b
 Kirkness, et al., 1952, 1953
 Kuznetzov, 1928
 Marsh & Cobb, 1910
 McDonald, 1895
 Moser, 1899
 Novisoff, 1912
 O'Malley, 1920a
 Parker & Kirkness, 1951
 Parker, et al., 1952
 Pritchard, 1937c
 Radcliffe, 1920
 Rathbun, 1900
 Robertson, 1948
 Rutter, 1904b

Scheer, 1939
Shapovalov & Taft, 1954
Snyder, 1931
Stone, 1928a, 1928b, 1930b,
Stone, 1897

Tanner, et al., 1890
U.S. Fish and Wildlife Service, 1945
Wales & Coot, 1955a
Williamson, 1927

Entries concerning the kokanee, or land-locked sockeye, mentioning size at time of return are as follows:

Clemens, 1939b, 1946b
Curtis & Fraser, 1948
Dymond, 1932, 1936
Evermann, 1896
Evermann & Meek, 1898
Foerster, 1947b
Fraser & Pollitt, 1951

Gilbert, 1914b
Jordan, 1884, 1892
Kimsey, 1951
Locke, 1929
Neave, 1949
Ricker, 1938b, 1940
Scattergood, 1949

AGE AT TIME OF RETURN

Data on the age of sockeye salmon at time of return are contained in the following references:

Andrekson, 1950b
Anon., 1914a, 1951c, 1953c, 1954, 1955c
Babcock, 1907, 1908, 1931a
Barnaby, 1944
Bean, 1891
Berg, 1948
Bower, 1933
Bower & Aller, 1917a
Bowser, 1913
Briggs, 1953
Carl & Clemens, 1948
Clemens, 1935a, 1935b, 1938a, 1938b,
1940a, 1941, 1942, 1943, 1944, 1946a,
1946b, 1947, 1948, 1950, 1952
Clemens & Clemens, 1926, 1927, 1928,
1929, 1930, 1931, 1932a, 1932b,
1933, 1934, 1935, 1936, 1937
Chamberlain, 1907
Cleaver, 1951
Cobb, 1917
Davidson, 1940e
Davidson & Shostrom, 1936
Dombroski, 1952, 1954
Fish, 1948
Foerster, 1929b, 1934, 1935, 1936a,
1954b, 1955
Foerster & Fritchard, 1935
Foskett, 1951a, 1953, 1954, 1955a,
1955b

Fraser, 1921, 1919
Gilbert, 1913a, 1913b, 1914a, 1914b,
1916, 1918, 1919, 1922, 1923, 1924a,
1924c, 1925
Gilbert & Rich, 1929
Godfrey, et al., 1954
Hasler & Wisby, 1951
Higgins, 1932
Hoar, 1951b
Hobbs, 1937
Holmes, 1934
International North Pacific Fisheries
Commission, 1955
Jordan, 1896c, 1904e
Juday, 1935
Kirkness, et al., 1952, 1953
Koo, 1955
Kuznetsov, 1908
Milne, 1955
Milne, 1913
Neave, 1948, 1949
O'Malley, 1920a
Parker & Kirkness, 1951
Pritchard, 1937c
Ricker, 1938b
Rich, 1948
Ricker, 1954
Robertson, 1948
Rounsefell & Kelez, 1940

Rutter, 1904b
Scheer, 1939
Shapovalov & Taft, 1954
Smith, 1900

Smoker, 1954
Snyder, 1931
Thompson, 1942, 1945b
U.S. Fish & Wildlife Service, 1945

Entries primarily concerned with the age at time of return of the kokanee are as follows:

Carl & Clemens, 1948
Chamberlain, 1907
Clemens, 1935a, 1939b, 1946b
Curtis & Fraser, 1948
Dymond, 1932
Evermann, 1897

Foerster, 1947b
Foerster & Pritchard, 1935
Neave, 1949
Ricker, 1938b, 1940

TYPE OF SPAWNING STREAM

Data on the nature of the spawning stream chosen by the sockeye salmon are contained in the following references:

Anon., 1904a
Babcock, 1931a
Bean, 1891, 1894
Brice, et al., 1898
Burner, 1951
Chamberlain, 1907
Clemens, 1935a, 1946b, 1951, 1953
Fish, 1948
Foerster, 1935, 1936c
Foerster & Pritchard, 1935
Gilbert, 1914b
Greene, 1911b
Hobbs, 1937
Hume, 1893
Jordan, 1904a
Jordan & Evermann, 1896
Jordan & Gilbert, 1887

Kirkness, et al., 1952
Kuznetsov, 1928
McDonald, 1894a
Neave, 1949
Neave & Wickett, 1953
O'Malley, 1904, 1920a
Powers, 1941
Pritchard, 1949
Radcliffe, 1928
Rathbun, 1900
Rich, 1948
Rutter, 1904b
Scheer, 1939
Thompson, 1945b
Ward, 1920a
Wynne-Edwards, 1947

Material on this topic relating to the kokanee is included in the following papers:

Chamberlain, 1907
Clemens, 1953
Curtis & Fraser, 1948
Fraser & Pollitt, 1951

Gilbert, 1914b
Kinsey, 1951
Wynne-Edwards, 1947a

DISTANCE TRAVELED UPSTREAM

The following references mention the distance traveled upstream by the sockeye salmon:

Babcock, 1931a	Jordan, 1884, 1892, 1896c, 1904a
Bean, 1887b, 1891, 1894	Jordan & Evermann, 1896
Brice, et al., 1898	Jordan & Gilbert, 1887
Burner, 1951	Killick, 1955
Carl & Clemens, 1948	Kuznetsov, 1928
Clemens, 1935b, 1953	Locke, 1929
Evermann & Goldsborough, 1907b	McDonald, 1895
Foerster & Pritchard, 1935	O'Malley, 1920a
Gilbert, 1924c	Radcliffe, 1928
Gilbert & O'Malley, 1921	Scheer, 1939
Greene, 1911b	Ward, 1920a
International North Pacific Fisheries Commission, 1955	Wynne-Edwards, 1947a, 1952, 1946

NATURE OF SPAWNING SITE

Notes regarding the nature of the spawning site of sockeye salmon are contained in the following references:

Anon., 1954	Jordan, 1892, 1896c, 1904a
Brett, 1952a	Jordan & Evermann, 1896
Bower, 1925b	Leach, 1922
Briggs, 1953	Mac Day, 1931
Burner, 1951	Moser, 1899
Chamberlain, 1907	O'Malley, 1920a
Crawford, 1908	Parker, et al., 1952
Foerster, 1929a, 1935, 1936c	Rich, 1948
Foskett, 1947a, 1947b	Rounsefell & Kelez, 1940
Gangmark & Fulton, 1952	Schultz, 1935
Gilbert & Rich, 1929	Smith, 1900
Hickman, 1932	U.S. Fish and Wildlife Service, 1945
Hobbs, 1937	

The following references are primarily concerned with the kokanee:

Chamberlain, 1907	Fraser & Pollitt, 1951
Curtis & Fraser, 1948	Gangmark & Fulton, 1952
Evermann, 1896	Kimsey, 1951
Foskett, 1947a, 1947b	

SPAWNING PERIOD

Data on the spawning period of the sockeye are contained in the following

references:

- Andriashev, 1955
 Anon., 1949b, 1953c
 Ayson, 1910
 Babcock, 1914, 1915, 1917, 1920, 1921, 1923, 1927, 1928, 1930, 1931b
 Barin, 1887
 Berg, 1948
 Birchall, 1915
 Birchall & Hickman, 1914
 Bower, 1923, 1927, 1929a
 Brett & Pritchard, 1946a
 Brice, et al., 1898
 Chamberlain, 1907
 Chapman, 1943
 Clemens, 1935a, 1946b
 Collison & Hickman, 1917
 Craig & Hacker, 1940
 Davidson, 1940a
 Evermann, 1896, 1897
 Evermann & Meek, 1898
 Fish, 1948
 Foerster, 1929b, 1936a, 1937, 1944b
 Foskett, 1947b
 Fraser, 1918
 Gangmark & Fulton, 1952
 Gibson, 1921, 1922, 1923, 1924, 1925, 1926, 1927, 1929, 1930, 1931, 1932, 1916
 Gilbert & O'Malley, 1921
 Gilbert & Rich, 1929
 Hickman, 1914, 1915, 1918, 1921, 1922, 1923, 1924, 1925, 1926, 1927, 1928, 1929, 1930, 1931, 1932
 Hickman & Collison, 1920
 Hobbs, 1937
 Hume, 1893
 Jordan & Evermann, 1896
 Killick, 1955
 Kuznetsov, 1928
 Leach, 1922, 1923, 1927, 1928, 1930, 1931, 1932
 Lockington, 1880
 Marsh & Cobb, 1907, 1908, 1911
 McConnell & Brett, 1946
 Moser, 1899
 Motherwell, 1934
 Neave, 1949
 O'Malley, 1904, 1920a
 Parker, et al., 1952
 Pritchard & Cameron, 1940
 Rathbun, 1900
 Ravenel, 1901, 1902
 Rounsefell & Kelez, 1940
 Rutter, 1904b
 Schaefer, 1951
 Schultz, 1935
 Smith, 1899, 1900
 Stone, 1914, 1915a, 1915b, 1916a, 1916b, 1917a, 1917b, 1918a, 1918b, 1919, 1920a, 1920b, 1921a, 1921b, 1922a, 1922b, 1923a, 1923b, 1924a, 1924b, 1925a, 1925b, 1926a, 1927a, 1927b, 1928a, 1928b, 1929a, 1929b, 1930a, 1930b, 1931a, 1931b, 1932a, 1932b
 Stone, 1897
 Ward, 1920b
 Wisley, 1920
 Withler, et al., 1949
 Wynne-Edwards, 1947a

References particularly concerned with the spawning period of the kokanee are as follows:

Chamberlain, 1907
Clemens, 1935a, 1939b
Curtis & Fraser, 1948
Dymond, 1932
Evermann, 1896, 1897
Evermann & Meek, 1898
Foskett, 1947b
Gangmark & Fulton, 1952

Kimsey, 1951, 1955
Locke, 1929
Milner, 1874
Neave, 1949
Ricker, 1938b, 1940
Wynne-Edwards, 1947a

SEXUAL DIMORPHISM

Data on sexual dimorphism in sockeye salmon are mentioned in the following references:

Babcock, 1931a
Bean, 1891, 1894
Brett & Fritchard, 1946a, 1946b
Brice, et al., 1898
Briggs, 1953
Carl & Clemens, 1948
Chamberlain, 1907
Clemens, 1946b
Gilbert, 1924c
Gilbert & O'Malley, 1921
Evermann & Goldsborough, 1907b
Foerster, 1954b

Jordan, 1892, 1896c, 1904a, 1907
Jordan & Evermann, 1896
Jordan & Gilbert, 1887
Kuznetsov, 1928
Locke, 1929
Lockington, 1880
Marr, 1944
O'Malley, 1904, 1920a
Rutter, 1904b
Schultz, 1935
Shapovalov, 1947
Shapovalov & Taft, 1954
Stone, 1897

The following entries mention sexual dimorphism in the kokanee:

Chamberlain, 1907
Kimsey, 1951
Locke, 1929

Ricker, 1940
Scattergood, 1949

SPAWNING BEHAVIOR

Data on the spawning behavior of sockeye salmon are contained in the following references:

Anon., 1953c
Babcock, 1931a
Bean, 1894
Berg, 1948
Bower, 1923
Brice, et al., 1898
Briggs, 1953
Burner, 1951

Chamberlain, 1907
Crawford, 1908
Foerster, 1935
Hobbs, 1937
Jordan, 1892, 1896c
Jordan & Evermann, 1896
Jordan & Gilbert, 1887
Koser, 1899

Rutter, 1904b
Schultz, 1935
Shapovalov & Taft, 1954

Smith, 1900
Withler, et al., 1949

Spawning behavior in the kokanee are recorded by the following workers:

Chamberlain, 1907
Curtis & Fraser, 1948
Evermann, 1896, 1897

Kimsey, 1951, 1955
Nicker, 1938b

POST-SPAWNING BEHAVIOR

Data on the post-spawning behavior of sockeye salmon are noted in the following references:

Bean, 1891, 1894
Brice, et al., 1893
Briggs, 1953
Gilbert, 1914a
Greene, 1911b
Hobbs, 1937
Howard, 1948

Hume, 1893
Jordan, 1892, 1896c, 1904a
Jordan & Evermann, 1896
Killick, 1955
Rathbun, 1900
Rutter, 1904b
Stone, 1897

Data on the post-spawning behavior of the kokanee are included in the following papers:

Curtis & Fraser, 1948
Evermann, 1897
Evermann & Meek, 1893

Kimsey, 1955
Locke, 1929
Schultz, 1935

DATE EGGS HATCH

Data on the time of hatching of sockeye salmon are included in the following references:

Carl & Clemens, 1948
Clemens, 1935a
Crawford, 1908
Davidson, 1940a
Foerster, 1937, 1938b, 1944b
Foerster & Pritchard, 1935
Gangmark & Fulton, 1952
International North Pacific Fisheries
Commission, 1955

Jordan, 1896c
Jordan & Evermann, 1896
Leach, 1928
Marsh & Cobb, 1910
Rich, 1948
Smith, 1895a
U.S. Fish and Wildlife Service, 1945
Williamson, 1927
Withler, et al., 1949

DATE EGGS HATCH

Information specifically referring to the time of hatching of the kokanee are contained in the following papers:

Carl & Clemens, 1948	Foerster, 1938b
Clemens, 1935a	Foerster & Pritchard, 1935
Evermann, 1897	Gangmark & Fulton, 1952
Evermann & Meek, 1898	Kimsey, 1951

BEHAVIOR OF FRY AND FINGERLINGS

Data on the behavior of the fry and fingerlings of sockeye salmon are included in the following references:

Anon., 1953c, 1951	Moser, 1899
Babcock, 1904a, 1904b	Rich, 1918
Chamberlain, 1907	Rutter, 1904b
Clemens, 1951, 1953	Shapovalov & Taft, 1954
Foerster, 1925, 1955	Smith, 1898a, 1899, 1900
Fraser, 1919	Stone, 1897
Hoar, 1953, 1951	Wales & Coots, 1955a
MacKimon & Brett, 1955	Withler, et al., 1949

Information specifically referring to the behavior of the fry and fingerlings of the kokanee are contained in the following papers:

Chamberlain, 1907	Ricker, 1940
Kimsey, 1951	U.S. Fish and Wildlife Service, 1935

TIME YOUNG SPEND IN FRESH WATER

Data on the time spent in freshwater by the young sockeye are contained in the following references:

Anon., 1948, 1951c, 1952, 1955e	Clemens & Clemens, 1926, 1927, 1928,
Babcock, 1904a, 1908, 1931a	1929, 1930, 1931, 1932a, 1933,
Barnaby, 1944	1934, 1935, 1936, 1937
Bean, 1894	Cobb, 1921
Bower, 1934	Carp, et al., 1953
Bowser, 1913	Foerster, 1925, 1934, 1936a, 1937,
Brett & McConnell, 1950	1938b, 1944b, 1954b,
Carl & Clemens, 1948	Foerster & Pritchard, 1935
Chamberlain, 1907	Foskett, 1951a, 1952a, 1954, 1955a,
Cleaver, 1951	1955b
Clemens, 1935a, 1935b, 1938a, 1940a,	Fraser, 1916, 1919
1946a, 1946b, 1947, 1948, 1950, 1951,	Gilbert, 1913a, 1913b, 1914a, 1914b,
1952, 1953	1924c, 1915, 1919, 1920, 1922,

Gilbert (cont.), 1923, 1924a, 1925
 Gilbert & Rich, 1929
 Handa, 1934
 Higgins, 1932
 Holmes, 1934
 Hunter, 1949a
 Hume, 1893
 Juday, 1935
 Locke, 1929
 MacKimon & Brett, 1955
 McDonald, 1894c, 1895
 Milne, 1913, 1917
 Neave, 1948, 1949
 Neave & Wickett, 1953

O'Malley, 1920a
 Parker & Kirkness, 1951
 Rich, 1948
 Ricker, 1954
 Robertson, 1921
 Rutter, 1907b
 Scheer, 1939
 Shapovalov & Taft, 1954
 Smith, 1898a
 Smoker, 1954
 U.S. Fish and Wildlife Service, 1945
 Wales & Coots, 1955a
 Withler, et al., 1949

DATE OF SEAWARD MIGRATION

Statements on the date of seaward migration of young sockeye salmon are contained in the following references:

Babcock, 1904a, 1904b, 1905
 Barnaby, 1944
 Bean, 1894
 Bower, 1925b, 1938a
 Bower & Fassett, 1914
 Brett & McConnell, 1950
 Brett & Pritchard, 1946a
 Chamberlain, 1907
 Clemens, 1951
 Clemens, et al., 1938
 Overmann, 1897
 Fish, 1948
 Foerster, 1936a, 1952
 Foerster & Pritchard, 1935
 Fraser, 1919
 Gilbert, 1914a
 Gilbert & Rich, 1929
 Greene, 1911b
 Hamilton & Andrew, 1954

Higgins, 1931
 Holmes, 1934
 International North Pacific Fisheries Commission, 1955
 Johnson, et al., 1918
 MacKimon & Brett, 1955
 Marr, 1944
 Neave, 1948
 Parker, et al., 1953
 Rich, 1948
 Robertson, 1921
 Rounsefell & Kelez, 1940
 Rutter, 1904b
 Shapovalov & Taft, 1954
 Smith, 1899, 1900
 Snyder, 1931
 Wales & Coots, 1955a
 Withler, et al., 1949

SIZE AT TIME OF SEAWARD MIGRATION

Data on the size of the young sockeye salmon at time of seaward migration are contained in the following references:

Ancn., 1955e
 Babcock, 1903, 1904a, 1904b
 Barnaby, 1944
 Brett & McConnell, 1950
 Chamberlain, 1907
 Chamberlain & Bower, 1913
 Foerster, 1934, 1935, 1936a, 1938b, 1944b
 Fraser, 1919

Gilbert, 1913b, 1915, 1916, 1920
 McDonald, 1894c, 1895
 Milne, 1913
 Moser, 1902
 Rich, 1948
 Robertson, 1921
 Rounsefell & Kelez, 1940

MOVEMENTS IN THE OCEAN

Data on the movements in the ocean of the sockeye salmon are contained in the following references:

- | | |
|---|-----------------------------|
| Anon., 1909, 1953b | Jordan, 1896c, 1904a, 1904b |
| Babcock, 1903, 1914, 1931a | Jordan & Evermann, 1896 |
| Barnaby, 1952 | Powers, 1941 |
| Bean, 1891, 1894 | Rathbun, 1900 |
| Chamberlain, 1907 | Rich, 1925a, 1935c, 1939 |
| Clemens, 1935b | Rounsefell & Kelez, 1940 |
| Cobb, 1917, 1931 | Rutter, 1904b |
| Davidson, 1940c | Scheer, 1939 |
| Davidson & Hutchinson, 1940 | Shapovalov & Taft, 1954 |
| Gilbert, 1895, 1914b, 1924b | Snyder, 1931 |
| Higgins, 1931 | Verhoeven, 1952 |
| Hoar, 1953 | Williamson, 1927 |
| International North Pacific Fisheries
Commission, 1955 | |

MARKING OR TAGGING AND RECAPTURE DATA

Data on marking or tagging and recapture of sockeye salmon are contained in the following references:

- | | |
|---|---|
| Anon., 1951c, 1952, 1953c, 1954 | International North Pacific Fisheries
Commission, 1955 |
| Aro, 1951 | Jensen, 1953 |
| Babcock, 1914 | Jordan, 1892, 1896c, 1904b |
| Barnaby, 1944 | Killick, 1955 |
| Bolton, 1930 | Kirkness, et al., 1952, 1953 |
| Bowser, 1913 | Marsh & Cobb, 1907, 1908, 1911 |
| Brett, 1952a | Milne, 1949, 1955 |
| Brett & Fritchard, 1946b | Milne, 1917 |
| British Columbia, 1941 | O'Malley, 1924 |
| California, State of, 1904 | O'Malley & Rich, 1911, 1920 |
| Chamberlain, 1908 | Parker & Kirkness, 1951 |
| Clemens, 1937, 1939c | Parker, et al., 1952 |
| Clemens, et al., 1939 | Powers, 1939 |
| Coker, 1922 | Fritchard, 1932b, 1944d, 1945c, 1947,
1948c |
| Craigie, 1926 | Fritchard & Brett, 1945 |
| Fish, 1948 | Rich, 1924, 1925a, 1927, 1935a, 1935c,
1939, 1941 |
| Foerster, 1929e, 1930b, 1934, 1936a,
1941, 1945, 1946a, 1946b, 1947a,
1948, 1954b | Rich & Morton, 1930 |
| Gilbert, 1924b | Rich & Suomela, 1929a |
| Gilbert & Rich, 1927 | Ricker & Robertson, 1935 |
| Godfrey, et al., 1954 | Robertson, 1921 |
| Greene, 1911b | Rounsefell & Kelez, 1940 |
| Higgins, 1928, 1929, 1940 | Royal, 1951 |
| Holmes, 1928 | |

Rutter, 1904b
Sano, 1951
Scheer, 1939
Scofield, 1920a
Snyder, 1931

Thompson, 1936, 1940, 1942, 1945a,
1945b
Ward, 1939
Williamson, 1927
Withler, 1952a
Withler, et al., 1949

Data on marking or tagging and recapture of the kokanee are contained in the following two references: Foerster, 1947b; Higgins, 1930

HOMING INSTINCT

Discussions or data concerning the homing instinct in sockeye salmon are contained in the following references:

Aro, 1951
Babcock, 1931a
Chamberlain, 1907
Clemens, 1935a, 1937, 1938b, 1939c,
1951, 1953
Craigie, 1926
Crawford, 1907
Foerster, 1941, 1946b
Fraser, 1919
Gilbert, 1914b, 1915, 1916, 1918,
1919
Gilbert & Rich, 1927
Hasler & Wisby, 1951
Higgins, 1928
Holmes, 1928
Hume, 1893

International North Pacific Fisheries
Commission, 1955
Jordan, 1892, 1896c, 1904b
Jordan & Gilbert, 1887
Marsh & Cobb, 1911
Milne, 1917
Powers, 1939, 1941
Rich, 1939, 1948
Rich & Ball, 1931
Ricker, 1940
Ricker & Robertson, 1935
Rounsefell & Kelez, 1940
Rutter, 1904b
Sano, 1951
Scheer, 1939
Shapovalov & Taft, 1954
U.S. Fish and Wildlife Service, 1945
Verhoeven, 1952
Ward, 1939

GROWTH RATES

Remarks on the growth rates of sockeye salmon are included in the following references:

Berg, 1948
Chamberlain, 1907
Dunlop, 1924
Foerster, 1929a, 1936a
Fraser, 1916, 1918, 1919, 1921
Gilbert, 1914b, 1916, 1918, 1921
International North Pacific Fisheries
Commission, 1955

Koo, 1955
Marr, 1944
Parker & Kirkness, 1951
Ricker, 1938a
Robertson, 1921
Rounsefell & Kelez, 1940

Remarks on growth rates of the kokanee are contained in the following

references:

Curtis & Fraser, 1948
Foerster, 1947b
Ricker, 1938b

FOOD AND FEEDING HABITS

Comments on the food and/or feeding habits of sockeye salmon are included in the following references:

Anon., 1952, 1953b, 1953c, 1955c	Marsh & Cobb, 1908
Babcock, 1931a	Rich, 1948
Barnaby, 1952	Ricker, 1934, 1937, 1954
Bean, 1891, 1894	Robertson, 1921
Bowser, 1913	Rounsefell & Kelez, 1940
Carl & Clemens, 1948	Rutter, 1904b
Chamberlain, 1907	Senter, 1940
Chapman & Quistorff, 1938	Stone, 1897
Clemens, 1935a, 1935b, 1940b, 1951, 1953	Thompson, 1931
Cobb, 1917, 1921	U.S. Fish and Wildlife Service, 1945
Fish, 1939	Williamson, 1927
Foerster, 1925, 1937, 1941, 1944b, 1955	Withler, 1948
Fraser, 1916, 1919, 1923	Withler, et al., 1949
Gilbert, 1913b, 1914a	
Greene, 1911b	
Holmas, 1928	
International North Pacific Fisheries Commission, 1955	
Juday, 1935	
Maeda, 1955	

Comments on the food and/or feeding habits of the kokanee are contained in the following references:

Carl & Clemens, 1948	Dymond, 1936
Clemens, 1939b	Fraser & Pollitt, 1951
Clemens, et al., 1938	Locke, 1929
Curtis & Fraser, 1948	Munro & Clemens, 1937
	Ricker, 1938b, 1940

PARASITES AND DISEASES

Parasites and diseases infecting the sockeye salmon are reported by:

Bangham & Adams, 1954	Fish, 1939
Bean, 1891	Gilbert, 1918
Clemens, 1939	Guberlet, 1936
Dombroski, 1955	Jordan, 1892, 1896c, 1904
Duff, 1932b	Kuitunen-Ekbaum, 1933a
Larp, et al., 1953	Kobayashi, 1934
Uguchi, 1934	Lawler & Scott, 1954
Fallera, 1926	Ricker, 1938

Sano, 1951
Shapovalov & Taft, 1954
Smedley, 1933

Ward, 1908
Wardle, 1933
Wilson, 1916

Investigators reporting specifically on the kokanee are:

Bangham & Adams, 1954
Haderlie, 1953
Jordan, 1892, 1896c, 1904
Kuitunen-Ekbaum, 1933b

Ricker, 1938, 1940
Rucker, et al., 1953
Wales & Wolf, 1955b
Wardle, 1932

INTRODUCTIONS AND ACCLIMATIZATION

For data on the introduction and acclimatization of sockeye salmon and the kokanee into various exotic waters, see subject section under this category.

EGG COUNTS

The following references contain data on the number of eggs produced by the sockeye salmon (including the kokanee):

Aro, 1952
Aro & Broadhead, 1950
Bower, 1938a
Brett & McConnell, 1950
Foerster, 1929a, 1932, 1936a, 1936a,
1955
Foerster & Pritchard, 1936, 1941
Gilbert & Rich, 1929
Higgins, 1940

Holmes, 1934
Hunter, 1948
Kuznetsov, 1928
Moser, 1902
Rich, 1940b
Scattergood, 1949
Stone, 1897
Withler, 1950

RELATIVE ABUNDANCE

Material on the relative abundance of sockeye salmon (including the kokanee) is contained in the following references. Examination of the specific entries will indicate whether the data are in the form of catch records or as counts of migrant adults.

Anarekson, 1950b
Anon., 1915b, 1931a, 1938a, 1949a, 1949c,
1952, 1953a, 1953c, 1954, 1955c
Aro, 1952
Atkinson, 1955
Babcock, 1910
Bryant & Parkhurst, 1950

Chapman, 1940b
Ellis, et al., 1937
Foerster, 1929a, 1941, 1945, 1947a,
1947c, 1950, 1954b
Gangmark & Fulton, 1952
Godfrey, et al., 1951
Holmes, 1940

Hunter, 1948, 1949a
International North Pacific Fisheries
Commission, 1955
Johnson, et al., 1948
Kuznetzov, 1928
Milne & Pritchard, 1948
Milne, 1913
Moser, 1899, 1902
Oregon Fish Commission, 1941, 1949
Parker, et al., 1952, 1953
Pritchard, 1949
Rich, 1935c, 1940b, 1941, 1942
Rich & Ball, 1929b, 1931, 1935
Robertson, 1949
Rounsefell & Kelez, 1940

Royal, 1951
Schoning, et al., 1951
Smoker, 1954
Snyder, 1931
U.S. Fish and Wildlife Service,
1924, 1931-1940, 1938-1940
Washington, State of, 1935-1945
Wilcox, 1898
Withler, 1950, 1952b

MASU SALMON

Oncorhynchus masou (Brevoort), commonly called the masu or sina salmon, is distributed in the Western Pacific from the Okhotsk Sea south to Formosa. Both sea-run and land-locked forms are known and the species breaks up into a number of morphological forms, many of which have been named. In this bibliography, the data for Oncorhynchus masou and related forms are combined.

DESCRIPTION - COUNTS AND MEASUREMENTS

The following papers present descriptive matter on the masu salmon (including related forms) and /or counts and measurements of any of its systematic characteristics:

Aoki, 1934
Berg, 1948
Foerster, 1935

Hikita, 1953, 1955
Oshima, 1934
Tchernavin, 1938

FIGURES AND ILLUSTRATIONS

The following references contain drawings and/or illustrations of the masu salmon (including related forms):

Berg, 1948
Hikita, 1953
Nomura, 1953

Oshima, 1934
Regan, 1920

LIFE COLORS

Often natural populations of fishes have distinctive color patterns. To aid in racial analysis, an attempt was made to isolate data on life colors. The following references contain statements referring to the color of the masu salmon (including related forms):

Aoki, 1934
Berg, 1948

Ohno, 1934
Oshima, 1934

RELATIONSHIPS

The following references contain data on the relationships of masu salmon (including related forms) to other species. Distinctions employed in keys are included in this category.

Berg, 1948
Kobayasi, 1951, 1953, 1955

Nomura, 1953
Tchernavin, 1938

ANATOMY AND PHYSIOLOGY

Included within this category are references concerning the anatomy, histology, osteology (including sub-fossil finds) and physiology of Cnecorhynchus masou and related forms.

Nobayashi, 1955

Nobayashi & Yuki, 1954a, 1954b

Kubo, 1954, 1955

Nishida, 1953a

Nomura, 1953

Tchernavin, 1938

TIME OF SPAWNING MIGRATION

Data on the time that Oncorhynchus masou or one of its nominal forms have been observed migrating upstream at any point in its course are contained in the following references:

Berg, 1948	Milne, 1913
Cobb, 1917, 1921	Ohno, 1934
Handa, 1934	Tokahisa & Takeshi, 1934
Foerster, 1935	U.S. Fish and Wildlife Service, 1945
International North Pacific Fisheries Commission, 1955	

AGE AT TIME OF RETURN

Data on the age at time of return of Oncorhynchus masou or one of its nominal forms are contained in the following references:

Berg, 1948
International North Pacific Fisheries
Commission, 1955
Oshima, 1934

SPAWNING PERIOD

Data on the spawning period of Oncorhynchus masou are presented in the following papers: Ohno, 1934; Berg, 1948

POST-SPAWNING BEHAVIOR

Data on the post-spawning behavior of Oncorhynchus masou or its relatives are noted in the following references: Ohno, 1934; Oshima, 1934

BEHAVIOR OF FRY AND FINGERLINGS

Data on the behavior of the fry and fingerlings of Oncorhynchus masou are noted in the following paper: Kubo, 1955

TIME YOUNG SPEND IN FRESHWATER

Data on the time spent in freshwater by the young Oncorhynchus masou or its relatives are contained in the following references:

Aoki, 1934
Handa, 1934
Kobayashi & Yuki, 1954a

Ohno, 1934
Oshima, 1934

DATE OF SEAWARD MIGRATION

Statements on the date of seaward migration of young Oncorhynchus masou or related forms are contained in the following references:

International North Pacific Fisheries
Commission, 1955
Kobayashi & Yuki, 1954a
Oshima, 1934
Sano & Kobayashi, 1952, 1953

MOVEMENTS IN THE OCEAN

Data on the movements in the ocean of Oncorhynchus masou or related forms are contained in the following references:

Hikiga, 1955
International North Pacific Fisheries
Commission, 1955
Sano & Kobayashi, 1952

MARKING OR TAGGING AND RECAPTURE DATA

Data on the marking or tagging and recapture of Oncorhynchus masou are contained in the following reference: International North Pacific Fisheries Commission, 1955

GROWTH RATES

Remarks on the growth rates of Oncorhynchus masou or its related forms are contained in the following references:

Berg, 1948
International North Pacific Fisheries
Commission, 1955

Kobayashi & Yuki, 1954a

PARASITES AND DISEASES

The occurrence of parasites and diseases in Oncorhynchus masou
or related forms have been reported by:

Eguchi, 1934.
Kobayashi, 1934
Nishino, 1953

ANNOTATED BIBLIOGRAPHY

- | | |
|---|--|
| <p>Abernathy, A. S. 1887</p> <p>Salmon in the Clackamas River. Bull. U. S. Fish Comm., 6: 332.</p> <p>Chinook; silver; time species migrates upstream.</p> | <p>Anon. 1879</p> <p>Report of Commission Fisheries of California for the years 1878-1879, 1-16.</p> <p><u>O. quinnat</u>; Calif.; catch records.</p> |
| <p>Alexander, A. B. 1905</p> <p>Report on statistics and methods of the fisheries. Rept. U. S. Bur. Fish. (1904), 121-162.</p> <p>Chinook; Columbia R.; time species returns from ocean to stream mouth.</p> | <p>Anon. 1880</p> <p>Report of Commission Fisheries of California, year 1880, 1-15.</p> <p><u>O. quinnat</u>; Sacramento R. and tributaries; catch records.</p> |
| <p>Andreksen, A. 1950</p> <p>The 1949 sockeye salmon runs to Rivers and Smith Inlets, British Columbia. Prog. Rept. Pacific Coast Stat., Fish. Res. Bd. Canada, 82: 9-10.</p> <p>Sockeye; Rivers, Smith Inlets, B. C.; age at time of return (age groups); weight at time of return; catch records.</p> | <p>Anon. 1903a</p> <p>Pacific Fisheries. Pacific Fisherman, 1: 9-10.</p> <p>Chinook; sockeye; development (figured, chinook); figured (sockeye, on cover).</p> |
| <p>Andreksen, A., and Feskett, D. R. 1950</p> <p>Contributions to the life history of the sockeye salmon. (No. 35) Rept. Provincial Fish Dept., (1949) Prev. Brit. Col., 26-40, 18 tables.</p> <p>Sockeye; Skeena, Nass R., Rivers Inlet; age at time of return (age groups); size of species at time of return; sex ratios; racial analysis-detailed data but no discussion.</p> | <p>Anon. 1903b</p> <p>Runs of the chinook salmon in the Columbia. Pacific Fisherman, 1: 9-10.</p> <p>Chinook, quinnat; Columbia, Sacramento, Fraser R.; time species returns from ocean to stream mouth; spawning period; segregation of populations in Columbia R.; size of species at time of return; distance traveled upstream; home stream theory; catch records.</p> |
| <p>Andriashev, Anatoly P. 1955</p> <p>A contribution to the knowledge of the fishes from the Bering and Chukchi seas. Spec. Sci. Rept., Fish., U. S. Fish & Wildlife Service, 1-81, 27 figs.</p> <p><u>O. keta</u>; <u>O. gorbuscha</u>; <u>O. nerka</u>; <u>O. kisutch</u>; Bering, Chukchi seas; distribution; spawning period.</p> | <p>Anon. 1904a</p> <p>Alaska Salmon Commission, the salmon streams of Alaska. Pacific Fisherman, 2: 21.</p> <p>King; red; humpback; dog; silver; Alaska rivers; type of stream chosen.</p> |

- Anon. 1904b
- First spring salmon on the Fraser.
Pacific Fisherman, 12: 13.
- Spring; Fraser R.; time species migrates upstream.
- Anon. 1904c
- Salmon-marking experiments on the Pacific coast. Pacific Fisherman, 2: 25.
- Quinnat; Pacific coast waters; marking and recapture data, on migration routes; movements in ocean.
- Anon. 1905
- Some interesting facts about Pacific coast salmon. Pacific Fisherman, 3: 22-23.
- Quinnat, chinook, tye, king; red, blue-back, sockeye; coho; silverside; hump-back, pink; chum, dog; Pacific coast waters; distribution; description.
- Anon. 1909
- The Whilom haunt of the sockeye. Pacific Fisherman, 7: 12.
- Sockeye; Fraser R.; movements in ocean.
- Anon. 1910a
- Chinook salmon on east coast. Pacific Fisherman, 8: 15.
- Chinook; intro. & acclim.: Lake Sunapee, N. H. and Lake Champlain, N. Y., Argentina, Japan, France.
- Anon. 1910b.
- Chinook salmon in New Zealand, Report of the Committee on Foreign Relations. Trans. Amer. Fish. Soc., 39th Ann. Meet. (1909), 181-182.
- Chinook; New Zealand; intro. & acclim.
- Anon. 1911a
- Life history of the sockeye salmon (summary of work of C. H. Gilbert). Pacific Fisherman, 12: 13.
- Sockeye; Fraser R.; age at time of return; racial analysis, comments only.
- Anon. 1911b
- The salmon canning industry of Siberia. Pacific Fisherman Yearbook, 50e-50d.
- Dog; humpback; red; king; silver; Siberia; distribution.
- Anon. 1914c
- Spring salmon running near Ketchikan. Pacific Fisherman, 12: 13.
- Spring; Ketchikan, Alaska: time species migrates upstream.
- Anon. 1915a
- Acclimatization of humpback salmon in Maine waters. Pacific Fisherman, 13: 17.
- Humpback; Me.; intro. & acclim.
- Anon. 1915b
- Census of red salmon in Wood River, Alaska. Pacific Fisherman, 13: 11.
- Humpback; dog; red; king; Wood R., Alaska; counts of migrant adults;
- Anon. 1915c
- Hatchery and fishery notes, output of the fish hatcheries in 1915. Cal. Fish & Game, 1: 187-188.
- Quinnat; distribution; Mill, Battle Cr., Tehama County, Price Cr., Eel, Sacramento, Klamath, McCloud R., Calif; size at time of seaward migration.

- Anon. 1915d
Quiniault salmon running. Pacific Fisherman, 18: 15.

Quiniault; Quiniault R., Wash.; time species migrates upstream.
- Anon. 1916a
The fall run of salmon. Cal. Fish & Game, 2: 41-42.

Quinnat, silver; Sacramento, Eel, Klamath, Smith R., Monterey Bay; time species migrates upstream.
- Anon. 1916b
Marked salmon liberated. Cal. Fish & Game, 2: 209.

Quinnat; Klamath R., Calif.; time eggs hatch; marking & recapture data.
- Anon. 1917
Commercial fisheries on the Mendocino coast. Cal. Fish & Game, 3: 180-181.

Salmon; Noyo R., Calif.; time species migrates upstream.
- Anon. 1918a.
Facts of current interest. Cal. Fish & Game, 4: 146.

Salmon; Pittsburg, Calif.; size at time of return (67 lbs.).
- Anon. 1918b -
Successful introduction of salmon in New Zealand. Cal. Fish & Game, 4: 48.

Quinnat; distribution; Waitaki R., New Zealand; intro. & acclim.
- Anon. 1921a.
Chinook salmon in Lake Ontario. Cal. Fish & Game, 7: 163.

Chinook; Lake Ontario; intro. & acclim.; length at time of return.
- Anon. 1921b.
Fort Seaward hatchery, hatchery notes. Cal. Fish & Game, 7: 170-171.

Chinook; Mad R., Humboldt Bay, Eel R., Calif.; distribution.
- Anon. 1923
Quinnat salmon taken in Lake Ontario. Cal. Fish & Game, 9: 59-60.

Quinnat; Lake Ontario, Can.; intro. & acclim.; weight at time of return.
- Anon. 1924
Tagged salmon recovered in Siberia. Pacific Fisherman, 22: 11.

O. keta; Siberia; marking & recapture data; movements in ocean.
- Anon. 1928
Life history notes. Humpback salmon taken off Santa Monica coast. Cal. Fish & Game, 14: 90-91.

Humpback; range; Santa Monica, Calif.; size at time of return.
- Anon. 1929a
Sockeye salmon successfully introduced. Cal. Fish & Game, 15: 256.

O. nerka, sockeye; Montana; intro. & acclim.

- Anon. 1929b- Anon. 1938a
- The tagging of pink salmon, 1928. Prog. Rept. Biol. Stat. Nanaimo & Prince Rupert, Biol. Bd. Can., 8-9.
- Bonneville fishways handles peak of Columbia run. Pacific Fisherman, 36: 15-16.
- Pink; chum; B. C.; tagging & recapture data: migration routes, segregation of populations.
- Chinook; blueback; silver; Bonneville Dam; time species migrates upstream; counts of migrant adults.
- Anon. 1931a Anon. 1938b
- Counts of salmon at weirs in Alaska. U. S. Dept. Commerce, Fish. Serv. Bull., 4-5.
- First spring chinook is taken December 1. Pacific Fisherman, 36: 55.
- Pink; coho; red; king; chum; Alaska; weir counts.
- Chinook; Columbia R.; time species migrates upstream.
- Anon. 1931b Anon. 1938c
- Sockeyes early in south sound traps. Pacific Fisherman, 29: 47.
- Pink runs coming later in Southeast Alaska. Pacific Fisherman, 36: 22-23, 1 table.
- King; sockeye; West Pass, Tacoma, Wash.; time species migrates upstream.
- Pink; SE Alaska; time species migrates upstream.
- Anon. 1932 Anon. 1939
- Pink and chum investigations. Ann. Rept. Biol. Bd. Can. (1931), 62.
- Spring chinooks taken in Columbia. Pacific Fisherman, 37: 43.
- Pink; chum; Massett inlet, Can.; time of seaward migration.
- Chinook; Columbia R.; time species migrates upstream.
- Anon. 1937 Anon. 1942a
- Return of Pacific salmon to their home streams. Pacific Fisherman, 35: 38-40.
- Pink salmon studies. Prog. Rept. Pac. Coast Stat., Fish. Res. Bd. Can., 20.
- King, spring, chinook; coho, silver; pink; Pacific coast waters (specific localities mentioned); figured; tagging & recapture data: migration routes; home stream theory; segregation of populations; age at time of return; type of stream chosen.
- Pink; McClinton creek, Massett inlet, B. C.; counts of migrant adults.

- Anon. 1942b
 Uganik pinks late. Pacific Fisherman, 40: 19.
 Pink; Kodiak Is.; time species migrates upstream.
- Anon. 1948
 Salmon fisheries. Pac. Mar. Fish. Comm. (Bull. 1), 13-23, 7 tables.
O. tschawytscha (sic), chinook, king; O. kisutch, silver, coho; O. nerka, sockeye, blueback; O. gorbuscha, pink, humpback; O. keta, chum, dog; time young spend in freshwater.
- Anon. 1949a
 General salmon investigation operations. Prog. Rept. Pac. Coast Stat., Fish. Res. Bd. Can., 10.
 Pink; chum; coho; sockeye; B. C.; counts of migrant adults.
- Anon. 1949b
 Quinnet salmon in Australia. Salm. Trout Mag., 1-11.
 Quinnet; sockeye; S. Australia; intro. & acclim.; spawning behavior.
- Anon. 1949c
 Rich run of early sockeye proves benefit of Fraser fishways. Pacific Fisherman, 47: 22.
 Sockeye; Stuart Lake system; counts of migrant adults; segregation of populations.
- Anon. 1951a
 Drought brings death to salmon. Fish. Res. Bd. Can., Prog. Repts. Pac. Coast Stat., 72.
 Pink; Tsolum R., Vancouver, B. C.; distribution.
- Anon. 1951b
 Landlocked silver salmon for Montana waters. Prog. Fish Cult., 13: 192.
O. kisutch, silver; Anaconda, Montana; intro. & acclim.
- Anon. 1951c
 Salmon, Pacific Biological Station, Nanaimo, British Columbia. Ann. Rept., Fish. Res. Bd. Can. (1950), 39-42.
 Sockeye; pink; chum; B. C.; marking & recapture data; age at time of return; time young spend in freshwater.
- Anon. 1952
 Salmon investigations. Ann. Rept. Fish. Res. Bd. Can. (1951), 66-79.
 Spring; coho; blueback; sockeye; pink; chum; B. C.; tagging & recapture data, migration routes; time young spend in freshwater; counts of migrant adults; counts & measurements; food & feeding habits.
- Anon. 1953a
 Basic data bearing on sockeye run of 1953. Pacific Fisherman, 51: 55-56.
 Sockeye; Fraser R.; racial analysis, comments; counts of migrant adults.

- Anon. 1953b Japanese high-seas gillnets fish mingled stocks of feeding salmon. Pacific Fisherman, 51: 61, 68.
- Red; pink; chum; N. Pacific south to westward of the Aleutian Chain; movements in ocean; food & feeding habits; description; behavior in ocean.
- Anon. 1953c - Pacific Biological Station, Nanaimo, British Columbia. Ann. Rept. Fish. Res. Bd. Can. (1952), 83-127.
- Sockeye; pink; chum; spring; coho; B. C.; counts of migrant adults; counts & measurements; age at time of return; food & feeding habits; intro. & acclim.:(odd-yr. pink into Nile Cr.); spawning behavior; spawning period; behavior of fry & fingerlings; tagging & recapture data, migration routes; catch records.
- Anon. 1954 Pacific Biological Station, Nanaimo, British Columbia. Ann. Rept. Fish. Res. Bd. Can. (1953), 75-99.
- Sockeye; pink; chum; silver, coho; B. C.; counts of migrant adults (weir); counts & measurements; nature of spawning site; behavior of fry; tagging & recapture data, migration routes; age at time of return; migration behavior.
- Anon. 1955a Fingerlings from early spawning salmon. Prog. Fish Cult., 17: 133.
- Chum; Washington; biochemistry.
- Anon. 1955b Ocean troll salmon. (7th) Ann. Rept. Pac. Mar. Fish. Comm. (1954), 7-8.
- O. tschawytscha (sic), chinook, king; O. kisutch, silver, coho; tagging & marking, recapture data; migration routes.
- Anon. 1955c Pacific Biological Station, Nanaimo, British Columbia. Ann. Rept. Fish. Res. Bd. Can. (1954), 75-105.
- Sockeye; pink; chum; spring; coho; B. C.; counts of migrant adults (weir); age at time of return; food & feeding habits.
- Anon. 1955d Research. (3rd) Ann. Rept. Pac. Mar. Fish. Comm. (1950), 11-14.
- O. tschewytscha (sic), chinook; O. kisutch, silver; Monterey Bay, Calif., Cape Fairweather, Alaska; tagging & recapture data, migration routes.
- Anon. 1955e Size of salmon migrants from Bare Lake, Kodiak Island. Prog. Fish Cult., 17: 122.
- Blueback; Kodiak Is., Alaska; time young spend in freshwater; size at time of seaward migration.

On the landlocked salmon found in the mountain streams of Japan. Proc. (5th) Pac. Sci. Cong. (1933), 5: 3783-3784.

O. formosanus, Biwa; O. masou, cherry; Japan; time young spend in freshwater; color; counts & measurements.

Aro, K. V., and Broadhead, G. C. 1950

Differences between egg counts of sock-eye salmon at Lakelse and Babine Lakes. Prog. Rept. Pac. Coast Stat., Fish. Res. Bd. Can., 17-19.

O. nerka, sockeye; Lakelse & Babine Lakes, Skeena R. system, B. C.; egg counts.

Aro, K. V. 1951a

The return of sockeye salmon marked at Babine and Lakelse Lakes. Prog. Rept. Pac. Coast Stat., Fish. Res. Bd. Can., 37-38.

Sockeye; Babine & Lakelse Lakes, B. C.; marking & recapture data, migration route; home stream theory; time species migrates upstream.

Aro, K. V. 1951b

The Babine River salmon escapement in 1951. Prog. Rept. Pac. Coast Stat., Fish. Res. Bd. Can., 37-38.

Sockeye; pink; spring; coho; chum; Babine R., B. C.; counts of migrant adults; time species migrates upstream; sex ratios; egg count; size at time of return.

A brief review of the salmon fishery in the Aleutian Islands area. Bull. Internat'l N. Pac. Fish. Comm., 93-104, 1 fig., 4 tables.

Red; pink; chum; coho; king; Unalaska, Shumagin, Bristol Bay, Kodiak, Unga; time species returns from ocean to stream mouth; catch records.

Atwater, W. O. 1892

The chemical composition and nutritive values of food fishes and aquatic invertebrates. Rept. Comm. (1888), U. S. Comm. Fish & Fish., 679-868, 19 tables, 1 plate.

O. chouicha, Calif. salmon, king, Columbia, Sacramento, chinook, tyee, fall, spring, saw-kwey, winter, chouicha; biochemistry.

Ayson, L. 1910

Introduction of American fishes into New Zealand. Bull. U. S. Bur. Fish., 28: 968-975.

O. tschawytscha (sic), chinook; O. nerka, sockeye; New Zealand; intro. & acclim.; spawning period.

- Babcock, John Pease 1903
Fisheries Commissioner's report for 1902. Rept. Fish. Comm'er. B. C. (1902), 1-38, figs. & tables.
Sockeye; spring, quinnat; humpback; coho, silver; dog; Fraser R.; movements in ocean; time species migrates upstream; distribution; permanently small form of sockeye in Seton & Anderson Lakes; length at time of seaward migration.
- Babcock, John Pease 1904a
Fisheries Commissioner's report for 1903. Rept. Fish. Comm'er. for B. C. (1903), 1-15, figs. & tables.
O. tschawytscha (sic), quinnat, spring; O. nerka, sockeye; B. C.; time of seaward migration; length at time of seaward migration; age of seaward migrants; behavior of fingerlings.
- Babcock, John Pease 1904b
Investigations in British Columbia. Pacific Fisherman, 2: 21-23.
O. tschawytscha (sic), quinnat, spring; O. nerka, sockeye; B. C. waters; behavior of fry & fingerlings; time of seaward migration; size at time of seaward migration.
- Babcock, John Pease 1905
Fisheries Commissioner's report for 1904. Rept. Fish Comm'er. B. C. (1904), 1-9.
Sockeye; spring; coho; B. C.; racial analysis; time of seaward migration; measurements.
- Babcock, John Pease 1906
Fisheries Commissioner's report for 1905. Rept. Fish Comm'er. B. C. (1905), 1-9.
Sockeye; O. tschawytscha (sic), spring; B. C.; time species migrates upstream.
- Babcock, John Pease 1907
Fisheries Commissioner's report for 1906. Rept. Fish. Comm'er B. C. (1906), 1-10.
Sockeye; spring; coho; B. C.; age at time of return; time species migrates upstream; distribution.
- Babcock, John Pease 1908
Fisheries Commissioner's report for 1907. Rept. Fish. Comm'er B. C. (1907), 1-18.
O. nerka, sockeye, redfish; spring, quinnat; kokanee; pink, humpback; B. C.; distribution; time young spend in freshwater; age at time of return; counts & measurements.
- Babcock, John Pease 1910
Fisheries Commissioner's report for 1909. Rept. Fish. Comm'er B. C. (1909), 1-31, tables.
Sockeye; spring; coho; dog; pink; time species migrates upstream; counts of migrant adults; Fraser R.; B. C.;
- Babcock, John Pease 1914
The spawning beds of the Fraser. Rept. Fish. Comm'er Prov. B. C. (1913), 17-38, 20 figs., 10 plates.
Sockeye; humpback; spring; Fraser R.; movements in saltwater; migration route; time species migrates upstream; spawning period; distribution.

Babcock, John Pease	1915	Babcock, John Pease	1921
The spawning beds of the Fraser. Rept. Comm'er Fish. Prov. B. C. (1914), 16-20.		The spawning beds of the Fraser River. Rept. Comm'er Fish. Prov. B. C. (1920), 12-14.	
Sockeye; spring; Fraser R.; spawning period; distribution.		Sockeye; time species migrates upstream; spawning period; distribution.	
Babcock, John P.	1916	Babcock, John Pease	1922
The spawning beds of the Fraser River. Rept. Comm'er Fish. Prov. B. C. (1915), 16-21.		The spawning beds of the Fraser River. Rept. Comm'er Fish. Prov. B. C. (1921), 65-67.	
<u>O. gorbuscha</u> ; spring; coho; Fraser R.; time species returns from ocean to stream; spawning period; time species migrates upstream; distribution.		Sockeye; Fraser R.; time species migrates upstream; distribution.	
Babcock, John Pease	1917	Babcock, John Pease	1923
The spawning beds of the Fraser River. Rept. Comm'er Fish. Prov. B. C. (1916), 18-21.		The spawning beds of the Fraser River. Rept. Comm'er Fish. Prov. B. C. (1922), 50-52.	
Sockeye; Fraser R., B. C.; spawning period; color; distribution.		Sockeye; spring; Fraser R.; time species migrates upstream; spawning period; distribution.	
Babcock, John Pease	1918	Babcock, John Pease	1925
The fish grounds and the spawning beds of the Fraser River. Rept. Comm'er Fish. Prov. B. C. (1917), 20-25.		The spawning beds of the Fraser River. Rept. Comm'er Fish. Prov. B. C. (1924), 40-42.	
Sockeye; Fraser R.; time species returns from ocean to stream mouth; size of species at time of return; time species migrates upstream.		Sockeye; Fraser R.; color; racial analysis, comment only; distribution.	
Babcock, John Pease	1920	Babcock, John Pease	1926
The spawning beds of the Fraser River. Rept. Comm'er Fish. (1919), 21-23.		The spawning beds of the Fraser River. Rept. Comm'er Fish. Prov. B. C. (1925), 40-43.	
Sockeye; Fraser R.; spawning period; distribution.		Sockeye; Fraser R., B. C.; color; distribution.	

- Babcock, John Pease 1927
The spawning beds of the Fraser River. Rept. Comm'er Fish. Prov. B. C. (1926), 58-61.
Sockeye; spring; Fraser R.; spawning period; racial analysis, comments; color; distribution.
- Babcock, John Pease 1928
The spawning beds of the Fraser River. Rept. Comm'er Fish. Prov. B. C. (1927), 39-41.
Sockeye; Fraser R.; spawning period; distribution.
- Babcock, John Pease 1929
The spawning beds of the Fraser River. Rept. Comm'er Fish. Prov. B. C. (1928), 44-45.
Sockeye; Fraser R.; time species migrates upstream; distribution.
- Babcock, John Pease 1930
The spawning beds of the Fraser River. Rept. Comm'er Fish. Prov. B. C. (1929), 44-48.
Sockeye; Fraser R.; time species migrates upstream; spawning period; distribution.
- Babcock, John Pease 1931
The Pacific salmon. Rept. Comm'er Fish. Prov. B. C. (1930), 56-61.
O. tschawytscha (sic), spring, quinnat, chinook, tyee, Sacramento, king; O. nerka, sockeye, Alaska red, blueback; O. kisutch, coho, silver; O. gorbuscha, pink, humpback; O. keta, chum, dog; B. C.; Calif.; Alaska; key; general life history; spawning behavior; type of stream chosen; time young spend in fresh-water; movements in ocean; food & feeding habits; age at time of return; time species returns from ocean to stream mouth; distance travelled upstream; color; sexual dimorphism; racial analysis, comments; home stream theory.
- Babcock, John Pease 1931
The spawning beds of the Fraser River. Rept. Comm'er Fish. Prov. B. C. (1930), 42-45.
Sockeye; Fraser R., B. C.; time species migrates upstream; distribution; spawning period.
- Baievsky, Boris 1926
Fisheries of Siberia. Rept. Comm'er Fish. U. S. Bur. Fish. (1926), 37-64, 2 figs. (maps).
O. keta, dog, chum; O. gorbuscha, humpback, gorbuscha, pink; O. nerka, red, sockeye; O. tschawytscha (sic), king, chavycha, king; O. kisutch, kizhuch, silver; Siberia; weight of species at time of return; distribution.
- Bailey, Basil E. 1936
The nutritive value of marine products (7), the vitamin A and D potency of the oils from British Columbia canned salmon. J. Biol. Bd. Can., 2: 431-455, 8 tables.
O. nerka; O. gorbuscha; sockeye; B. C.; biochemistry.
- Bailey, Basil E. 1937
The pigments of salmon. J. Biol. Bd. Can., 3: 469-472.
O. nerka, sockeye; biochemistry: 2 red pigments similar to astacin in O. nerka & Salmo gairdneri.

- Bailey, B. E. 1952
Marine oils, with particular reference to those of Canada. Bull. Fish Res. Bd. Can., 413, 45 figs., 98 tables.
Spring; coho; chum; sockeye; pink; biochemistry.
- Baird, Spencer F. 1874
Report of the Commissioner. Rept. Comm'er (1872-1873), U. S. Comm. Fish & Fish., i-xcii.
Salmo quinnat, Calif. salmon; McCloud R., Calif., Charlestown, N. H.; intro. & acclim.
- Baird, Spencer F. 1876
Report of the Commissioner. Rept. Comm'er U. S. Comm. Fish & Fish. (1873-74), v-11.
Salmo quinnat, Calif. salmon, king; chowichee, hoikoh; intro. & acclim.: N. J., Pa., N. Y., Conn., N. H., Mass., Me., Mich., Utah; time species migrates upstream; distance travelled; distribution.
- Baird, Spencer F. 1878
Report of the Commissioner. Rept. Comm'er U. S. Comm. Fish & Fish. (1875-76), i-1, 18 tables.
Salmo quinnat, Calif. salmon; intro. & acclim.: Lake Geneva, Wisc., New Zealand, Mich., Can., Sandwich Is., Ala., Col., Conn., Del., Ga., Ill., Ind., Iowa, Ky., La., Me., Md., Mass., Mich., Minn., Miss., Mo., N. J., N. Y., N. C., Ohio, Penn., R. I., S. C., Tenn., Tex., Utah, Vt., Va., W. Va.
- Baldwin, Wayne J. 1954
Notes--underwater explosions not harmful to salmon. Cal. Fish & Game, 40: 77.
O. tschawytscha (sic), king; O. kisutch, silver; distribution.
- Bangham, Ralph V., and Adams, 1954 James R.
A survey of the parasites of freshwater fishes from the mainland of British Columbia. J. Fish. Res. Bd. Can., 11: 673-708.
O. kisutch, coho; O. nerka, sockeye; O. nerka kennerlyi, kokanee; B. C.; parasites, internal.
- Barin, L. T. 1887
Salmon in the Clackamas River. Bull. U. S. Fish Comm., 6: 111-112.
O. chouicha, chinook, quinnat; silver; dog; blueback; time species migrates upstream; spawning period.
- Barnaby, Joseph T. 1944
Fluctuations in abundance of red salmon Oncorhynchus nerka (Walbaum) of the Karluk River, Alaska. Fish. Bull. U. S. Fish & Wildlife Serv., 50: 237-295.
O. nerka, red; Karluk R., Alaska; age at time of return; time species migrates upstream; time of seaward migration; sex ratios; time young spend in freshwater; size of seaward migrants; marking & recapture data.
- Barnaby, Joseph T. 1952
Offshore fishing in Bristol Bay and Bering Sea. Spec. Sci. Rept. Fish. U. S. Fish & Wildlife Serv., 1-30, 6 figs., 19 tables.
O. nerka, red, sockeye; O. gorbuscha, pink; O. kisutch, coho, silver; O. keta, chum; O. tschawytscha (sic), king, chinook; Bristol Bay, Bering Sea; brief life history; movements in ocean; feeding habits, ocean

- Beal, Fred R. 1955
Silver salmon (O. kisutch) reproduction in Montan. Prog. Fish Cult., 17: 79-81.
- O. kisutch, silver (landlocked); Georgetown, Crystal Lakes, Mont., intro. & acclim.; distribution; time eggs hatch.
- Bean, Tarleton H. 1887a
The cod fishery of Alaska. Fish. & Fish. Industries U. S., 1: 198-226.
- O. chouicha, silver; Korovin Is., Alaska; size at time of return.
- Bean, Tarleton H. 1887b
The fishery resources and fishing grounds of Alaska. Fish. & Fish. Industries U. S., 81-115.
- O. chouicha, king, chowichee, quinnat, keezitch; O. gorbuscha, humpback, dogfish; O. keta, hoikoh; O. nerka, redfish, krasnoi riba; O. kisutch; Alaska; description; range; size at time of return; distance travelled upstream; time species migrates upstream; distribution.
- Bean, Tarleton H. 1889
Hybrids in Salmonidae. Trans. Amer. Fish. Soc., (1889), 18: 12-18, 18-20.
- Not abstracted.
- Bean, Tarleton H. 1890
The Alaskan salmon and their allies. Trans. Amer. Fish. Soc. (1890), 19: 49-66, 7 plates (also privately published).
- King, chowichee, Takou, Columbia R., chinnook, quinnat; dog, hŷko; humpback; silver; red, redfish, blueback, sawqui, krasnya ruba; weight at time of return; sexual dimorphism, color & body changes; time species migrates upstream; distribution; time spent in freshwater; food, ocean; distance travelled upstream; spawning behavior nature of spawning site; figured.
- Bean, Tarleton H. 1882a
Account of a shipment by the United States Fish Commission of California salmon-fry (Oncorhynchus chouicha) to southern Louisiana with a note on some collections made at Tickfaw. Bull. U. S. Fish. Comm., 1: 205-206.
- O. chouicha; intro. & acclim.: Tangipahoa, Notalbany R., La.
- Bean, Tarleton H. 1882b
Notes on a shipment by the United States Fish Commission of California salmon (Oncorhynchus chouicha) to Tanner's Creek, Indiana in 1876. Bull. U. S. Fish. Comm., 1: 204-205.
- O. chouicha; intro. & acclim.: Ind.
- Bean, Tarleton H. 1884
List of the fishes distributed by the U. S. Fish Commission. Rept. Comm'er U. S. Fish & Fish. Comm. (1882), 1039-1044.
- O. chouicha, quinnat; synonymy.
- Bean, T. H. 1885
The distribution of the salmonidae in Alaska. Proc. Biol. Soc. Wash., 2: LXI-LXIII.
- O. chouicha; O. keta; O. nerka; O. kisutch; O. gorbuscha; Alaska; distribution.

Report of the salmon and salmon rivers of Alaska, with notes on the conditions methods, and needs of the salmon fisheries. Bull. U. S. Fish Comm., 9: 165-208, 45-87 tables & plates.

O. nerka, red, blueback, sawqui, sukkegh, krashnaya ruba, redfish; O. chouicha, king, chowichee, takou, Columbia R., chinook, quinnat; O. kisutch, silver; O. gorbuscha, humpback; O. keta, dog, hyko; Columbia R., Fraser R.; time spawning runs begin; type of stream chosen; distance travelled upstream; figured; size at time of return; color; food habits; egg size; parasites; post-spawning behavior; movements in ocean; sexual dimorphism.

Observations upon fishes and fish culture. Bull. U. S. Fish Comm., 10: 49-61.

O. chouicha, Calif. salmon; McCloud R.; time species migrates upstream; egg counts.

Life history of the salmon. Bull. U. S. Fish Comm., 12: 21-38.

O. chouicha, king, chowichee, takou, Columbia R., chinook, quinnat; O. keta, dog, hyko; O. kisutch, silver; O. gorbuscha, humpback; O. nerka, blueback, sawqui, sukkegh, krasnaya ryba; Columbia, Fraser R.; figured; distribution; range; type of stream chosen; distance travelled upstream; size at time of return; time of runs; food habits; leaping habits over stream obstacles; post-spawning behavior; time young spend in freshwater; sexual dimorphism; time of seaward migration; spawning behavior; color; O. nerka schools observed close to shore.

Five American Salmonidae in Germany. Bull. U. S. Fish. Comm., 2: 237-246.

Salmo quinnat, Calif. salmon; Germany, etc., intro. & acclim.

Ryby Presnykh Vod SSSR i sopredel'nykh stran. Akad. nauk., fauna SSSR, No. 27, 1: 466 pp.

O. masu; kisutch; keta; nerka; tschawytscha (sic); nerka adonis; nerka asabatsch; nerka ovetsch; masu formosanus; description; counts & measurements; synonymy; range; summary of life history; comparisons (key); time species migrates upstream; figured; distribution; growth rates; spawning period; age at time of return; spawning behavior; color.

American fishes in Italy. Bull. U. S. Bur. Fish., 28: 949-954.

O. tschawytscha (sic), quinnat; intro. & acclim.: Italy; growth.

Sulphur distribution in fish flesh proteins. J. Fish. Res. Bd. Can., 7: 51-54, 3 tables.

O. tschawytscha (sic), white spring; biochemistry: nitrogen, sulphur, ash.

- Bigelow, Henry B., and Welsh, 1925
William W.

Fishes of the Gulf of Maine. Bull.
U. S. Bur. Fish., 40: 1-567, 278 figs.

O. gorbuscha, humpback; O. tschawytscha
(sic), chinook; figured; Gulf of Me.;
description; color; range; size at
time of return; time species migrates
upstream; intro. & acclim.
- Birchall, K. F., and Hickman, 1914
C. P.

The spawning beds of the Skeena River,
Rept. Comm'ers. Fish. Prov. B. C.
(1913), 43-45.

Sockeye; humpback; spring; Skeena R.,
B. C.; distribution; spawning period.
- Birchall, Kenneth F. 1915

The spawning grounds of the Skeena.
Rept. Comm'ers. Fish. Prov. B. C.
(1914), 37-40.

Sockeye; Skeena R., B. C.; spawning
period; distribution.
- Black, Edgar C. 1953

Upper lethal temperatures of some
British Columbia freshwater fishes.
J. Fish. Res. Bd. Can., 10: 196-210,
14 figs., 3 tables.

O. nerka kennerlyi; upper lethal
temperature.
- Black, Virginia Safford 1951a

Changes in body choride, density, and
water contnt of chum (Oncorhynchus keta)
and coho (O. kisutch) salmon fry when
transferred from freshwater to sea water.
J. Fish. Res. Bd. Can., 8: 164-177, 4 figs.,
2 tables.

O. keta, chum; O. kisutch, silver; Cowichan
R., Vancouver Is.; physiological differences
between chum & coho shown in adjustment to
different salinities.
- Black, Virginia Safford 1951b

Osmotic regulations in teleost
fishes (in) Some aspects of the
physiology of fish. Univ. Toron-
to studies, 53-89.

O. keta, chum; O. gorbuscha, pink;
O. tschawytscha (sic), quinnat,
spring; O. kisutch, coho; behavior
of fry; biochemistry (physiology).
- Bolton, Lloyd L. 1930

Sockeye tagging on the Fraser River,
1928. Bull. Biol. Bd. Can., 1-8,
1 fig., 6 tables.

Sockeye; Fraser R., Gulf of Georgia;
time species returns from ocean to
stream mouth; tagging & recapture
data.
- Bonham, K., and Seymour, 1949
A. H.

Hybrid of chinook and silver sal-
mon from Puget Sound. Copeia, 69.

O. kisutch, silver; O. tschawytscha
(sic), chinook; Wash.; counts &
measurements; hybridization.
- Borne, Max von dem 1885

Distribution of American fish and
fish eggs by the German Fishery
Association. Bull. U. S. Fish
Comm., 5: 261-263.

Calif. salmon; France, Aude R.,
Narbonne; Prussia, Kurzig Lake;
Waag R.; intro. & acclim.
- Bottemanne, C. J. 1882

California salmon in the Netherlands.
Rept. Comm'ers. U. S. Comm. Fish &
Fish. (1879), 709-713.

Salmo quinnat, Calif. salmon; intro.
& acclim.; Netherlands; distribu-
tion.

- Bottemanne, C. J. 1884
Penning of salmon in order to secure their eggs. Bull. U. S. Fish Comm., 4: 169.
Salmo quinnat; Holland; Ourthe R., Liege, Belgium; intro. & acclim.
- Boulenger, G. A. 1895
Remarks on some cranial characters of the Salmonoids. Proc. Zool. Soc., London, 299-302.
Discussion of familial limits.
- Boulenger, G. A. 1910
On the distinctive characters between salmon and trout. J. Salmon & Trout Assoc. London, 14-16, 2 figs.
Description; figured; counts & measurements.
- Bower, Ward T. 1920a
Alaska fisheries and fur industries in 1918. Rept. Comm' Fish. U. S. Bur. Fish. (1918), 128 pp.
Red; Alaska; Wood R.; time species migrates upstream.
- Bower, Ward T. 1920b
Alaska fisheries and fur industries in 1919. Rept. Comm' Fish. U. S. Bur. Fish. (1919), 117 pp., 4 pls.
Red; Alaska, Wood R.; time species migrates upstream.
- Bower, Ward T. 1921
Alaska fishery and fur seal industries in 1920. Rept. Comm' Fish. U. S. Bur. Fish. (1921), 1-128.
Salmon (no other names); Alaska, Wood R., Naknek, Kuichak, Iliamna; spawning period; time of seaward migration.
- Bower, Ward T. 1922
Alaska fishery and fur-seal industries in 1921. Rept. Comm' Fish. U. S. Bur. Fish. (1922), 85 pp.
Red; silver; king; humpback; Bristol Bay, Alaska; time species migrates upstream.
- Bower, Ward T. 1923
Alaska fishery and fur-seal industries in 1922. Rept. Comm' Fish. for 1923, U. S. Bur. Fish., 118 pp., 16 figs.
Red; humpback; chum; coho; Wood R., Kuskokwim, Bristol Bay, etc., Alaska; time species migrates upstream; spawning period; distribution; spawning behavior (salmon, species not designated, pg. 46).
- Bower, Ward T. 1925a
Alaska fishery and fur-seal industries in 1923. Rept. Comm. Fish. U. S. Bur. Fish. (1924), 47-140, 11 figs.
Sockeye, red; Bristol Bay, Kuskokwim R., etc.; time species migrates upstream.
- Bower, Ward T. 1925b
Alaska fishery and fur-seal industries in 1924. Rept. Comm' Fish. U. S. Bur. Fish. (1925), 65-169, 12 figs.
Red; silver, coho; chum; humpback; king; Bristol Bay, etc., Alaska; time species migrates upstream; nature of spawning site; distribution; time of seaward migration.

Bower, Ward T.	1926	Bower, Ward T.	1931
Alaska fishery and fur-seal industries in 1925. Rept. Comm'er Fish. U. S. Bur. Fish. (1926), 65-160, 15 figs.		Alaska fishery and fur-seal industries in 1930. Rept. U. S. Comm'er Fish. (1931), 1-108, 8 figs.	
Red; coho, silver; king; Bristol Bay, Wood R., etc., Alaska; time species migrates upstream.		Red; coho; chum; king; Bristol Bay, etc., Alaska; distribution; time-species migrates, upstream.	
Bower, Ward T.	1927	Bower, Ward T.	1932
Alaska fishery and fur-seal industries in 1926. Rept. Comm'er Fish. U. S. Bur. Fish. (1927), 225-336, 11 figs.		Alaska fishery and fur-seal industries in 1931. Rept. U. S. Comm'er Fish. (1932), 1-96.	
Red; coho; humpback; chum; king; Bristol Bay area, etc., Alaska; distribution; time species migrates upstream; spawning period.		King; chum; red; coho; pink; Bristol Bay, etc., Alaska; time species migrates upstream; distribution.	
Bower, Ward T.	1929a	Bower, Ward T.	1933
Alaska fishery and fur-seal industries in 1927. Rept. Comm'er Fish. U. S. Bur. Fish. (1928), 61-171, 17 figs.		Alaska fishery and fur-seal industries in 1932. Rept. U. S. Comm'er Fish. (1933), 1-78.	
Red; coho; chum; humpback; king; Alaska; time species migrates upstream; spawning period.		Red; coho; pink; chum; king; Alaska; time species migrates upstream; racial analysis: Chignik, Copper R., Snake, Anan Cr.; age at time of return. (pp. 106, 108)	
Bower, Ward T.	1929b	Bower, Ward T.	1934
Alaska fishery and fur-seal industries in 1928. Rept. Comm'er Fish. for 1929, U. S. Bur. Fish., 191- 332.		Alaska fishery and fur-seal industries in 1933. Rept. U. S. Comm'er Fish. (1934), 239-312.	
Red; coho; Bristol Bay, etc., Alaska; time species migrates upstream.		Chum; king; pink; coho; red; Alaska; time species migrates upstream; time young spend in freshwater; racial analysis, comments, (pg. 345).	
Bower, Ward T.	1930	Bower, Ward T.	1935
Alaska fishery and fur-seal industries in 1929. Rept. Comm'er Fish. U. S. Bur. Fish. (1930), 205-339, 14 figs.		Alaska fishery and fur-seal industries in 1934. Rept. U. S. Comm'er Fish. (1935), 1-73.	
Red; chum; pink; coho; king; Bristol Bay, etc., Alaska; time species migrates upstream.		Red; pink; chum; coho; Alaska; time species migrates upstream.	

- Bower, Ward T. 1936
Alaska fishery and fur-seal industries in 1935. Administrative Rept., & Rept. U. S. Comm'er Fish. (1936), 111-71.
King; red; pink; chum; coho; Alaska; time species migrates upstream.
- Bower, Ward T. 1938a
Alaska fishery and fur-seal industries in 1936. Administrative Rept., & Rept. U. S. Comm'er Fish. (1937), 277-347.
Red; chum; coho; king; pink; Alaska; time species migrates upstream; time of seaward migration; egg counts (pg. 27).
- Bower, Ward T. 1938b
Alaska fishery and fur-seal industries in 1937. Administrative Rept., & Rept. U. S. Comm'er Fish. (1938), 71-150.
King; red; coho; Alaska; time species migrates upstream.
- Bower, Ward T. 1940
Alaska fishery and fur-seal industries in 1938. Administrative Rept., & Rept. U. S. Comm'er Fish. (1939), 83-168, 5 figs.
King; chum; red; pink; coho; Alaska; time species migrates upstream.
- Bower, Ward T. 1941
Alaska fishery and fur-seal industries in 1939. Administrative Rept., & Rept. U. S. Comm'er Fish. (1939), 97-184, 8 figs.
King; chum; silver; Alaska; time species migrates upstream.
- Bower, Ward T., and Aller, Henry D. 1915
Alaska fisheries and fur industries in 1914. Rept. Comm. Fish. U. S. Bur. Fish. (1914), 89 pp.
Chinook; sockeye; humpback; coho; chum; Alaska; Afognak, Yukon; time species migrates upstream (pg. 17, 48).
- Bower, Ward T., and Aller, Henry D. 1917a
Alaska fisheries and fur industries in 1915. Rept. Comm. Fish. U. S. Bur. Fish. (1915), 140 pp.
Red; humpback; coho; Alaska, Wood R.; time species migrates upstream; age at time of return (pg. 25).
- Bower, Ward T., and Aller, Henry D. 1917b
Alaska fisheries and fur industries in 1916. Rept. Comm. Fish. U. S. Bur. Fish. (1916), 118 pp.
King; coho; red; humpback; Alaska, Copper R., Yes Bay, Afognak; etc.; time species migrates upstream.
- Bower, Ward T., and Aller, Henry D. 1919
Alaska fisheries and fur industries in 1917. Rept. Comm. Fish. U. S. Bur. Fish. (1917), 123 pp.
Red; Alaska, Wood R.; time species migrates upstream.

Bower, Ward T., and Fassett, 1914
Harry Clifford

Fishery industries in Alaska fisheries and fur industries in 1913, by Barton Warren Evermann. Rept. Comm. Fish. U. S. Bur. Fish. (1913), 37-172.

Red, sockeye; humpback; coho; Alaska; Nashagak, Wood R., Afognak; Yukon; time species migrates upstream; pg. 2116; time of seaward migration.

Bowers, George M. 1899

Report of the U. S. Commissioner of Fish and Fisheries. Rept. Comm'er U. S. Comm. Fish & Fish. (1898), vii-xxix.

O. nerka, redfish, blueback, sockeye; O. gorbuscha, humpback; O. kisutch, coho; O. tshawytscha (sic), king, quinnat, chinook; dog; Alaska; time species migrates upstream.

Bowers, Geo. M. 1907

The distribution of food fishes during the fiscal year 1906. Rept. U. S. Bur. Fish., Bur. Fish., 78 pp.

Chinook; silver; blueback; humpback; intro. & acclim.: Mich., N. H., Argentina, Me.

Bowers, Geo. M. 1912

Report of the Commissioner of Fisheries, 1911. Ann. Rept. Comm'er U. S. Bur. Fish. (1911), 69 pp.

Chinook; Calif.; intro. & acclim.: San Lorenzo R., 1912; racial analysis, comments, only; pg. 22.

Bowser, W. J. 1909

Report of the Fisheries Commissioner for British Columbia for 1908, 1-14.

Sockeye; coho; humpback; spring; B. C.; time species migrates upstream; distribution.

Bowser, W. J. 1913

Report of the Fisheries Commissioner for British Columbia for 1912, 1-13.

Sockeye; spring; coho; dog; B. C.; age at time of return; time young spend in freshwater; distribution; food and feeding habits; migration routes.

Breder, C. M., Jr. 1924

The little redfish (Oncorhynchus nerka) at Scranton, Pennsylvania. Copeia (1924), 97-99.

O. nerka, Lake Winola, Scranton, Pa.; intro. & acclim.

Brett, J. R. 1952a

Skeena River sockeye escapment and distribution. J. Fish. Res. Bd. Can., 8: 453-468, 5 figs., 4 tables.

O. nerka, sockeye; Skeena R., B. C.; distribution in Skeena R.; nature of spawning site; tagging & recapture data.

Brett, J. R. 1952b

Temperature tolerance in young Pacific salmon, genus Oncorhynchus. J. Fish. Res. Bd. Can., 9: 265-323, 26 figs.

O. tshawytscha (sic), spring; O. gorbuscha, pink; O. nerka, sockeye; O. keta, chum; O. kisutch, coho; lethal maximum & minimum temp.; acclim.

Brett, J. R., and MacKinnon, D. 1952

Some observations on olfactory perception in migrating adult coho and spring salmon. Prog. Rept. Pac. Coast Stat. Fish. Res. Bd. Can., 21-23.

O. nerka, sockeye; O. kisutch, coho; O. tschawytscha (sic), spring; Stamp R., Vancouver Is., B. C.; olfactory perception in salmon.

Brett, J. R., and MacKinnon, D. 1953

Preliminary experiments using lights and bubbles to deflect migration young spring salmon. J. Fish. Res. Bd. Can., 10: 548-559, 5 figs., 4 tables.

(sic)
O. tschawytscha, spring; O. kisutch, coho; O. keta, chum; O. gorbuscha, pink; Pantledge R., Vancouver Is.; time of seaward migration.

Brett, J. R., and MacKinnon, D. 1954

Some aspects of olfactory perception in migrating adult coho and spring salmon. J. Fish. Res. Bd. Can., 11: 310-318, 3 figs.

O. kisutch, coho; O. tschawytscha (sic), spring; Stamp Falls, B. C.; parent stream theory; biochemistry.

Brett, J. R., and McConnell, J. A. 1950 1950

Lakelse Lake sockeye survival. J. Fish. Res. Bd. Can., 8: 103-110, 2 figs., 3 tables.

O. nerka, sockeye; brief life history; egg count; time species migrates upstream; time of seaward migration; age at time of seaward migration; size at time of downstream migration.

Brett, J. R., and Pritchard, 1946a
A. L.

Lakes of the Skeena River Drainage. I. Lakelse Lake. Prog. Rept. Pac. Coast Stat. Fish. Res. Bd. Can., 12-15.

Sockeye, coho, pink; Lakelse Lake, B. C.; time of seaward migration; time of migration upstream; sexual dimorphism; spawning period.

Brett, J. R., and Pritchard, 1946b
A. L.

Lakes of the Skeena River Drainage. II. Morice Lake. Prog. Rept. Pac. Coast Stat. Fish. Res. Bd. Can., 23-26.

O. gorbuscha, pink; O. kisutch, coho; O. tschawytscha, spring; O. nerka, sockeye; Morice Lake, B. C.; sexual dimorphism; time species migrates upstream.

Brice, John J., and others 1898

A manual of fish culture. Rept. Comm'er U. S. Comm. Fish & Fish., (1897), 1-340.

O. tschawytscha (sic), quinnat, chinook, king, Columbia salmon, Sacramento salmon, tyee, saw-qui; O. nerka, blueback, redfish, red, Fraser R., sockeye, saw-qui; O. gorbuscha, silver, silversides, skowitz, hoopid, coho; O. keta, dog; Pac. Coast; counts & measurements; color; approx. weight at time of return; range; type of stream chosen; distance travelled upstream; sexual dimorphism; time species returns from ocean to stream mouth; time species migrates upstream; post-spawning behavior; spawning period; spawning behavior; figured; intro. & acclim.: Australia, New Zealand, France.

The behavior and reproduction of Salmonid fishes in a small coastal stream. Cal. Fish & Game, Fish Bull. (94), 62 pp., 5 figs.

O. kisutch, silver; O. tschawytscha (sic), king; O. nerka, red; O. keta, chum; O. gorbuscha, pink; Prairie Cr. drainage, Orick, Humboldt County, Calif.; range; time species returns; migration rate; sexual dimorphism: body & color changes; sex ratio; nature of spawning site; characteristics of redds; spawning behavior; post-spawning behavior; age at time of return; size at time of return.

British Columbia

1936

Condition of salmon spawning grounds, 1935. Rept. Comm. Fish. Prov. B. C. (1935), 45-49.

Sockeye; spring; coho; pink; chum; B. C.; distribution.

British Columbia

1944-1955

Catch of fish taken from the following non-tidal waters during the 1943-1954 seasons. Rept. Provincial Fish. Dept. Prov. B. C.

Kokanee; B. C.; distribution (various pagination).

British Columbia

1954

Salmon spawning report, British Columbia, 1953. Rept. Provincial Fish. Dept. Prov. B. C. (1953), 91-102.

Sockeye; spring; coho; pink; chum; B. C.; distribution.

Salmon spawning report, British Columbia, 1954. Rept. Provincial Fish. Dept. Prov. B. C. (1954), 82-93.

Sockeye; spring; coho; pink; chum; B. C.; distribution.

Brocklesby, H. N.

1933

The hydrolysis of the body oil of the salmon. Contrib. Can. Biol. Fish. N. S. 7: 505-519, 2 figs., 3 tables.

O. kisutch, coho; O. gorbuscha, pink; O. tschawytscha, red spring; oil content of flesh: biochemical.

Brocklesby, H. N.

1940

The chemistry of marine mammal, fish and fish-liver oils as related to other utilization in world commerce. Proc. (6th) Pac. Sci. Cong. (1939), 3: 291-308, 2 figs., 4 tables.

Sockeye; chum; pink; spring; vit. A & D: biochemical.

Brocklesby, H. N., and Denstedt, 1933 O. F.

The industrial chemistry of fish oils with particular reference to those of British Columbia. Bull. Biol. Bd. Can. (37): 150 pp.

Sockeye; spring; coho; pink; chum; biochemistry.

Brown, Merrill

1937

The salmon migration in the Shasta River (1930-1934). Cal. Fish & Game, 24(1): 60-65, figs. 17-22, 1 tbl.

O. tschawytscha (sic), king; Shasta R.; time species migrates upstream; type of stream chosen; nature of spawning site; age at time of return.

Bryant, Floyd G.

1949

A survey of the Columbia River and its tributaries with special reference to its fishery resources. (2). Washington streams from the mouth of the Columbia River to and including the Klickitat River (area 1). Spec. Sci. Rept. U. S. Fish & Wildlife Serv. (62): 1-110, 7 figs., tables.

Chum; chinook; silver; time species migrates upstream; type of stream chosen; distance travelled upstream; spawning period.

Bryant, Floyd G., and Parkhurst, Zell E. 1950

Survey of the Columbia River and its tributaries (4). Spec. Sci. Repts., Fish. U. S. Fish & Wildlife Serv. (37): 1-108, 9 figs., tables.

O. nerka kennerlyi, kokanee, silver; chinook; blueback; silver; Columbia R.; distribution; counts of migrating adults.

Bryant, Harold C.

1923

Salmon fishcultural operations on the Klamath River. Cal. Fish & Game, 9(1): 19-23, 5 photos.

King; silver; Klamath, Sacramento R.; egg counts.

Bryant, Harold C., and Evermann, Barton Warren 1919

California Trout. Cal. Fish & Game, 5(3): 105-111.

Salmon; comparisons.

Burner, Clifford J.

1951

Characteristics of spawning nests of Columbia River salmon. Fish. Bull. U. S. Fish & Wildlife Serv. 52: 97-110, 7 figs.

O. tschawytscha (sic), chinook; O. kisutch, silver; O. keta, chum; O. nerka, blueback; Columbia R.: Wenatchee, Entiat, Mehtow, Okanogan R.; general life history; range; number of spawning runs; time of runs; spawning behavior; pre & post spawning behavior; nature of spawning site; description of redd; comparisons, between species, of redds; distance travelled upstream; size at time of return; type of stream chosen.

Byers, Robert D.

1942

Salmon caught in Mexican waters. Cal. Fish & Game, 28(4): 217.

Salmon, silver; range; movements in ocean.

--C--

Calhoun, A. J.

1950

California angling catch records from postal card surveys: 1936-1948; with an evaluation of postal card non-response. Cal. Fish & Game, 36(3): 177-234, 1 fig., 1 tables.

Salmon; distribution.

California Bureau of Marine Fisheries 1929-1952

The commercial fish catch of California. Fish Bull. Cal. Fish & Game.

O. tschawytscha, king, quinnat; O. kisutch (milktschitch), silver, coho; Calif.; catch records (by region & month). (various paginations).

- California Fish and Game 1932
Bureau of Commercial Fisheries. Cal. Fish & Game, 18(1): 266.
Salmon; time of seaward migration; movements in ocean.
- California, State of 1870-1871
Report California Fish Commission, (1870-71), 1-24.
Calif.; (1853-64); distance travelled upstream (pg. 9).
- California, State of 1874-1875
Report California Fish Commission (1874-75), 1-36.
Salmo quinnat; Calif.; time species migrates upstream; catch records.
- California, State of 1877
Report California Fish Commission (1876-1877), 1-30.
Salmo quinnat; Sacramento, San Joaquin R.; home stream theory; time species migrates upstream; catch records; landlocked quinnat, San Andreas, San Leandro & Pilarcitos Reservoirs.
- California, State of 1886
Biennial Rept. Comm. Fish. State of Calif. (1885-86), 1-31.
Quinnat; Calif.; time species migrates upstream.
- California, State of 1894
Thirteenth Biennial Rept. State Bd. Fish Comm. State of Calif. (1893-1894), appendix, 37-143.
Calif.; size at time of return (57 lbs, pg. 54).
- California, State of 1898
Fifteenth Biennial Rept. State Bd. Fish Comm. State of Calif. (1897-1898), 1-45.
Calif.; movements in San Joaquin R.; time species migrates upstream (pg. 24).
- California, State of 1900
16th Biennial Rept. State Bd. Fish Comm. State of Calif. (1899-1900), 1-45.
Calif.; catch records; behavior of fry; time fry spend in freshwater; time species migrates upstream.
- California, State of 1902-1952
Biennial Report, Dept. Fish and Game.
King; silver; pink; Calif.; catch records by region. 1902, 1921, 1924, 1927, 1929, 1931, 1930-1932, 1934, 1937, 1936-1938, 1938-1940, 1940-1942, 1942-1944, 1944-1946, 1946-1948, 1948-1950, 1950-1952 (various paginations).
- California, State of 1904
18th Biennial Rept. State Bd. Fish Comm. State of Calif. (1903-1904), 1-71.
O. chouicha, quinnat; humpback; dog; blueback, red; Sacramento R.; Calif; figured; tagging & recapture data. length of life of fall salmon after reaching spawning grounds.
- California, State of 1910
21st Biennial Rept. Calif. Bd. Fish. & Game Comm'ers (1909-10), 1-72.
O. chouicha, quinnat; figured (color).

California, State of 1950-1952

Report of Bureau of Marine Fisheries.
42nd Biennial Rept. Dept. Fish & Game,
State of Calif., 55-90, 3 tables.

O. tschawytscha (sic), king; Calif.;
tagging & recapture data, migration
routes.

California, State of 1952-1954

43rd Biennial Rept. Calif. Dept. Fish
& Game, 1-96, 52 tables.

King; pink, humpback; silver; Calif.;
catch records (1916-1953); marking and
recapture data, migration routes (appen-
dix tables 40); size at time of return.

Canavan, William P. 1928

A new species of Phyllobothrium van Ben.,
from an Alaska dog salmon, with a note on
the occurrence of Crossobothrium angustum
Linton in the thresher shark. J. Helminth.,
6(1): 51-55. (Biol. Abst. #3456, 3(1-3),
1929.)

A new species, Phyllobothrium keta, found
in pyloric caeca of Oncorhynchus keta at
Excursion Inlet (S. eastern Alaska.)

Carl, G. Clifford 1939a

Furunculosis and another case of ich-
thyophthiriasis. Prog. Fish Cult.,
(45): 47-50.

Spring, king; coho, silver; Lake Cowi-
chan, B. C.; parasites (internal); bac-
terium.

Carl, G. C. 1939b

Salmon angling in Cowichan Bay. Prog.
Rept. Biol. Stat. Nanaimo & Prince Rupert,
Fish. Res. Bd. Can., (39): 9-12.

Spring, coho; Cowichan Bay, B. C.; catch
records; size at time of return.

Carl, G. Clifford, and 1948
Clemens, W. A.

The fresh-water fishes of British
Columbia. Handbook (5) B. C. Prov.
Mus. Dept. of Education, 1-132.

O. gorbuscha, pink, humpback; O. ki-
sutch, coho, silver; O. tschawytscha,
spring, king, tyee, chinook; O. keta,
chum, dog; O. nerka, sockeye, red, blue-
back; O. nerka kennerlyi, kokanee,
silver trout, kickinniee, little red-
fish; description; color; figured;
counts & measurements; distribution;
range; time eggs hatch; time young
spend in freshwater; age at time of
return; sexual dimorphism; time species
migrates upstream; distance travelled
upstream; food & feeding habits.

Chamberlain, F. M. 1907

Some observations on salmon and trout
in Alaska. Rept. U. S. Bur. Fish.
Bur. Fish. Doc. (627), 5-112, 5 pls.

O. gorbuscha, humpback; O. keta, dog;
O. nerka, sockeye, blueback; O. nerka
kennerlyi; O. tschawytscha (sic), king,
quinnat, chinook; O. kisutch, coho;
Naha, Karluk R., Alaska; description;
comparisons (key); figured, young;
counts & measurements; color; time
of seaward migration; time young spend
in freshwater; food and feeding habits;
young, fresh & salt water; behavior of
fry & fingerlings; growth rates, fres-
water; sex ratios; size at time of
seaward migration; distribution; time
species migrates upstream; spawning
period; movements (of young) in salt
water; leaping habit described for each
species; age at time of return; marking &
recapture data; intro. & acclim.: France,
New Zealand, U.S.; time species returns
from ocean to stream mouth; type of stream
chosen; homing instinct; size at time
of return; racial analysis-detailed
analysis; nature of spawning site;
spawning behavior - brief; sexual
dimorphism; color & body changes.

- Chamberlain, Fred M., and 1913
Bower, Ward T.
- Fishery industries, (in) Fishery and fur industries of Alaska in 1912, by Barton Warren Evermann. Rept. U. S. Comm'er Fish. Bur. Fish. (1912), (780): 18-73.
- Red; king; coho; pink; dog; Alaska; distribution; size of fingerlings at time of migration; racial analysis, comments only; time species migrates upstream.
- Chapman, W. M. 1936
- The pilchard fishery of the state of Washington in 1936 with notes on the food of the silver and chinook salmon off the Washington coast. Dept. Fish., State of Wash., Bull. (36C): 1-20, 5 figs., 5 tables.
- O. kisutch, silver; O. tschawytscha (sic), chinook; Westport, Neah Bay, Wash.; food & feeding habits.
- Chapman, Wilbert McLeod 1938
- The oxygen consumption of salmon and steelhead trout. Bull. Dept. Fish. State of Wash., (37A): 1-22, 2 figs., 9 tables.
- O. tschawytscha (sic), chinook; O. nerka, blueback, sockeye; Wash.; rate of oxygen consumption by fry of each species; physiology.
- Chapman, Wilbert M. 1940a
- The average weight of food fish taken by the commercial fishery in the Columbia River. Bull. Dept. Fish. State of Wash., Bull. (39A): 1-31, 7 figs., 12 tables.
- O. tschawytscha (sic), chinook, king, spring, tyee, quinnat; O. nerka, blueback, sockeye, red; O. kisutch, silver, coho; O. keta, chum, dog; weight of species at time of return.
- Chapman, Wilbert McLeod 1940b
- Fish problems connected with Grand Coulee Dam. Contib. Fish Comm. State of Oreg., (2): 193-198, 1 tables.
- Chinook; blueback; silver; Grand Coulee Dam, Wash.; counts of migrant adults.
- Chapman, Wilbert McLeod 1941
- Observations on the migration of salmonoid fishes in the Upper Columbia River. Copeia, (4): 240-242.
- O. nerka, sockeye; chinook; Upper Columbia R.; time species migrates upstream; home stream theory.
- Chapman, Wilbert McLeod 1943
- The spawning of chinook salmon in the Main Columbia River. Copeia, (3): 168-170.
- O. tschawytscha (sic), chinook; O. nerka, sockeye, blueback, redfish; spawning period.
- Chapman, Wilbert McLeod, and 1938
Quistorff, Elmer
- The food of certain fishes of North Central Columbia River Drainage, in particular, young chinook salmon and steelhead trout. Bull. Dept. Fish. State of Wash., Bull. (37A): 1-14, 3 tables.
- O. tschawytscha (sic), chinook; O. nerka, sockeye, blueback; Wash.; food & feeding habits; racial analysis; counts.

- Chatwin, B. M. 1953a
Age and size of chum salmon from the Johnstone Strait area. Prog. Rept. Pac. Coast Stat., Fish. Res. Bd. Can., (97): 1-10.
- O. keta, chum; Johnstone Strait, B. C.; age at time of return, determined by scale studies; distribution; length of species at time of return.
- Chatwin, B. M. 1953b
Tagging of chum salmon in Johnstone Strait 1949 and 1950. Bull. Fish. Res. Bd. Can., (96): 33 pp., 7 figs., 18 tables.
- O. keta, chum; Johnstone Strait, B. C.; tagging & recapture data; migration routes; rate of travel.
- Chen, Johnson T. F. 1951
Checklist of the species of fishes known from Taiwan (Formosa). Quart. J. Taiwan Mus., 4(3, 4): 181-210.
- O. masou; Tai-chia, Nant'ou; listed.
- Cheney, A. N. 1887
Salmon in the Hudson River. Bull. U. S. Fish Comm., 6:351-352.
- Salmo ginnat; Calif. salmon; Hudson R., N. Y.; intro. & acclim.
- Cheney, E. S. 1931
Salmon...caught in San Joaquin R. (photo). Cal. Fish & Game, 17: 95.
- San Joaquin R., Calif. salmon; figured; weight at time of return (59 lbs.).
- Clark, G. H. 1929a
Sacramento River salmon fishery. Cal. Fish & Game, 15: 1-10, 4 figs.
- Sacramento, San Joaquin R.; time young spend in freshwater; distribution; age at time of return.
- Clark, G. H. 1929b
Sacramento-San Joaquin salmon (Oncorhynchus tschawytscha) fishery of California. Fish Bull. Cal. Fish & Game, Bull. (17): 1-73, 30 figs.
- O. tschawytscha (sic), Sacramento-San Joaquin salmon, chinook; distribution; age at time of return; time young spend in freshwater; length of species at time of return; time species migrates upstream.
- Clark, G. H. 1930
Salmon spawning in drainage canals in San Joaquin Valley. Cal. Fish & Game, 16: 270.
- San Joaquin Valley, Calif.; nature of spawning site; time of seaward migration; length of species at time of return; spawning period.
- Clark, G. H. 1939
The 1938 salmon catch. Cal. Fish & Game, 25: 43-45.
- Salmon; Calif.; distribution; time the species returns from ocean to stream mouth; time the species migrates upstream.
- Clark, G. H., and Hatton, S. Ross 1942
Progress report on adult salmon tagging in 1939-1941. Cal. Fish & Game, 28:111-115, 2 figs., 3 tables.
- King; silver; N. & S. of Pt. Arena, Calif.; movements in ocean; tagging & recapture data, segregations of populations.

- Clark, G. H. 1943
Salmon at Friant Dam--1942. Cal. Fish & Game, 29: 89-91, 1 fig.
- King, chinook; distribution; Friant Dam, San Joaquin R., Calif.; time species migrates upstream; type of stream chosen; spawning period.
- Cleaver, F. C. 1951
Fisheries statistics of Oregon. Fish Comm. State of Oreg., Contrib. (16): 3-175, 108 tables, 41 figs.
- O. nerka, blueback, red, sockeye; O. tschawytscha (sic), chinook, king, tyee; O. keta, chum, dog; O. kisutch, silver, silversides; Columbia R., Oreg. coast; time species migrates upstream; distribution of spawning areas; age at time of return; time young spend in freshwater; catch records.
- Clemens, Wilbert A. 1928
Investigations on the Pacific salmon. Proc. (3rd) Pan-Pac. Sci. Cong., (1926), 2: 2250-2252.
- O. tschawytscha (sic), king; B. C. to Sac. R., Calif.; tagging & recapture data.
- Clemens, Wilbert A. 1929
Summary of results of tagging of spring salmon along West Coast Vancouver Island and Queen Charlotte Islands in 1925, 1926, 1927. Prog. Rept. Biol. Stat. Nanaimo & Prince Rupert. Biol. Bd. Can., (4): 11-13.
- Spring; West Coast Vancouver, Queen Charlotte Is., B. C.; tagging & recapture data, migration routes.
- Clemens, Wilbert A. 1930
Pacific salmon migration: the tagging of the coho salmon on the East Coast of Vancouver Island in 1927 and 1928. Bull. Biol. Bd. Can., (15): 1-19, 4 figs., 9 tables.
- Coho; Strait of Georgia, B. C.; tagging & recapture data; distribution; age at time of return; weight at time of return; growth rates
- Clemens, W. A. 1932
Pacific salmon migration: the tagging of the spring salmon on the East Coast of Vancouver Island in 1927 and 1928 with notes on incidental tagging of other fish. Bull. Biol. Bd. Can. (27): 1-10, 4 figs., 5 tables.
- Spring; East Coast Vancouver Is.; tagging & recapture data; weight at time of return; migration routes.
- Clemens, W. A. 1935a
On the ages of maturity and the sex proportions of sockeye salmon in British Columbia waters. Trans. Roy. Soc. Can., 29(ser. 3); 161-174, 4 figs., 4 tables.
- O. nerka, sockeye; O. nerka kennerlyi, landlocked salmon, kennerlyi's salmon, kokanee, little redfish; distribution; type of stream chosen; spawning behavior; time eggs hatch; time young spend in freshwater; age at time of return; behavior in ocean; food & feeding habits; home stream theory; age groups.

Clemens, W. A.

1935b

The Pacific salmon in British Columbia waters. Rept. Comm. Fish. Prov. B. C. (1934), 103-105. (reprinted Rept. 1943, 83-85).

O. gorbuscha, pink, humpback; O. tschawytscha, spring, tyee, king, chinook, jacks; O. kisutch, coho, silver, bluebacks (immature specimens, esp. Strait of Georgia); O. nerka, sockeye, red (Alaska), blueback (Columbia R.), landlocked form: kokanee, little redfish, kennerlyi's salmon; age at time of return; time young spend in freshwater; distance travelled upstream; movements in ocean; weight of species at time of return; food & feeding habits; color; key; counts & measurements.

Clemens, W. A.

1937

Investigations: Appendix 4, Report of Pacific Biological Station, Nanaimo, British Columbia for 1936. Ann. Rept. Biol. Bd. Can. (1936), 28-35.

Sockeye; pink; B. C.; marking & recapture data; home stream theory.

Clemens, Wilbert A.

1938a

Contributions to the life history of the sockeye salmon. Rept. Provincial Fish. Dept. Prov. B. C. (1937), 32-49, 26 tables.

Sockeye; Fraser R., Rivers Inlet, Skeena, Nass R.; age at time of return (age groups); size of species at time of return; time young spend in freshwater; sex ratios; racial analysis, detailed data, no discussion.

Clemens, W. A.

1938b

Investigations: Appendix 4, Report of Pacific Biological Station Nanaimo, British Columbia for 1937. Ann. Rept. Biol. Bd. Can. (now the Fish. Res. Bd. Can.) (1937), 48-53.

Spring; coho; chum; sockeye; pink; B. C.; counts; marking & recapture data; home stream theory; age at time of return.

Clemens, Wilbert A.

1939a

Contributions to the life history of the sockeye salmon. (No. 24) Rept. Provincial Fish. Dept. Prov. B. C. (1938), 29-41, 18 tables.

Sockeye; Rivers Inlet, Skeena, Nass R.; age at time of return (age groups); size of species at time of return; time young spend in freshwater; sex ratios; racial analysis, detailed data, no discussion.

Clemens, W. A.

1939b

The fishes of Okanagan Lake and nearby waters. Bull. Fish. Res. Bd. Can. (56): 27-38, 3 figs.

O. nerka kennerlyi, kokanee; Okanagan Lake, B. C.; time of spawning age & size at maturity; sexual dimorphism; food & feeding habits; (O. tschawytscha (sic), spring; O. kisutch, coho)

Clemens, W. A.

1939c

Investigations: Appendix 4, Report of Pacific Biological Station, Nanaimo, British Columbia for 1938. Ann. Rept. Fish. Res. Bd. Can. (formerly Biol. Bd. Can.) (1938), 36-45.

Sockeye; pink; spring; coho; chum; B. C.; counts of migrant adults; marking & recapture data; home stream theory; parasites.

Clemens, W. A.

1940a

Contributions to the life history of the sockeye salmon. (No. 25) Rept. Provincial Fish. Dept. Prov. B. C. (1939), 26-38, 18 tables.

Sockeye; Rivers Inlet, Skeena, Nass R., B. C.; age at time of return (age groups); size of species at time of return; time young spend in freshwater; sex ratios; racial analysis, detailed data, no discussion.

Investigations: Appendix 4, Report of Pacific Biological Station Nanaimo, British Columbia for 1939. Ann. Rept. Fish. Res. Bd. Can. (formerly Biol. Bd. Can.), (1939), 22-30.

Sockeye; pink; chum; silver, coho; B. C.; counts of migrant adults; food & feeding habits.

Contributions to the life history of the sockeye salmon. (No. 26) Rept. Provincial Fish. Dept. Prov. B. C. (1940), 26-42, 18 tables.

Sockeye; Rivers Inlet, Skeena, Nass R.; age at time of return; size of species at time of return; sex ratios; racial analysis, detailed data, no discussion.

Contributions to the life history of the sockeye salmon. (No. 27) Rept. Provincial Fish. Dept. Prov. B. C. (1941), 27-44.

Sockeye; Rivers Inlet, Skeena, Nass R., B. C.; age at time of return (age groups); size of species at time of return; sex ratios.

Contributions to the life history of the sockeye salmon. (No. 28) Rept. Provincial Fish. Dept. Prov. B. C. (1942), 31-42, 18 tables.

Sockeye; Rivers Inlet, Skeena, Nass R., B. C.; age at time of return (age groups); size of species at time of return; sex ratios; racial analysis, detailed data, no discussion.

Contributions to the life history of the sockeye salmon. (No. 29) Rept. Provincial Fish. Dept. Prov. B. C. (1943), 31-42, 18 tables.

Sockeye; Rivers Inlet, Skeena, Nass R., B. C.; age at time of return (age groups); size of species at time of return; sex ratios; racial analysis, detailed data, no discussion.

Contributions to the life history of the sockeye salmon. (No. 31) Rept. Provincial Fish. Dept. Prov. B. C. (1945), 31-42, 18 tables.

Sockeye; Rivers Inlet, Skeena, Nass R., B. C.; age at time of return (age groups); size of species at time of return; sex ratios; time young spend in freshwater; racial analysis, detailed data, no discussion.

Fishes of the Pacific Coast of Canada. Bull. Fish. Res. Bd. Can. (68): 368 pp., 253 figs., 1 plate.

O. gorbuscha, pink; O. kisutch, coho; O. tschawytscha (sic), spring; O. keta, chum; O. nerka, sockeye; kokanee, kickaninny, kennerlyi's salmon, little redfish; figured; description; counts & measurements; color; key; range; copied; general life history; size at maturity; sexual dimorphism; time species migrates upstream; type of stream chosen; spawning period; time young spend in freshwater; age at maturity; food habits.

Contributions to the life history of the sockeye salmon. (No. 32) Rept. Provincial Dept. Fish. Prov. B. C. (1946), 29-41, 18 tables.

Sockeye; Rivers Inlet, Skeena, Nass R.; age at time of return (age groups); size of species at time of return; time young spend in freshwater; sex ratios; racial analysis, detailed data, no discussion.

Contributions to the life history of the sockeye salmon. (No. 33) Rept. Provincial Fish. Dept. Prov. B. C. (1947), 29-40, 18 tables.

Sockeye; Rivers Inlet, Skeena, Nass R.; age at time of return (age groups); size at time of return; time young spend in freshwater; sex ratios; racial analysis, detailed data, no discussion.

Contributions to the life history of the sockeye salmon. (No. 34) Rept. Provincial Fish. Dept. Prov. B. C. (1948), 525-536, 18 tables.

Sockeye; Rivers Inlet; Skeena, Nass R., B. C.; age at time of return; size at time of return; time young spend in freshwater.

On the migration of Pacific salmon (Oncorhynchus). Trans. Roy. Soc. Can., 45(ser. 3): 9-17.

O. keta, chum; O. tschawytscha (sic), spring; O. nerka, sockeye; O. gorbuscha, pink; coho; Fraser R., B. C.; time of seaward migration; time young spend in freshwater; type of stream chosen; migration routes; behavior of fry & fingerlings; food & feeding habits; home stream theory.

On the cyclic abundance of animal populations. Canadian Field Naturalist, 66(5): 121-123.

O. gorbuscha, pink; O. kisutch, coho; O. nerka, sockeye; distribution, (McClinton Cr., Queen Charlotte Is.); age at time of return; racial analysis, comments only; time young spend in freshwater.

On some fundamental problems in the biology of Pacific salmon. Trans. Roy. Soc. Can., 47(ser. 3): 1-13.

O. tschawytscha (sic), spring, king, chinook; O. kisutch, coho, silver; O. gorbuscha, pink, humpback; O. keta, chum, dog; O. nerka, sockeye, red, blueback; O. nerka kennerlyi, kokanee, landlocked, lake-locked; hybridization; chromosome studies; fossil; behavior of fry & fingerlings; type of stream chosen; time young spend in freshwater; distribution; physiology; home stream theory; intro. & acclim.: east coast of N. Amer., S. Amer., Europe, Australia, New Zealand; food & feeding habits; distance travelled upstream; migration routes.

Contributions to the life history of the sockeye salmon (No. 11). Rept. Comm. Fish. Prov. B. C. (1925), 18-39.

Sockeye; Fraser R., Rivers Inlet, Skeena, Nass R.; size of species at time of return; age at time of return (age groups); sex ratios; time young spend in freshwater; racial analysis, detailed data.

Clemens, Wilbert A., and 1927
Clemens, Lucy S.

Contributions to the life history of the sockeye salmon (No. 12). Rept. Comm. Fish. Prov. B. C. (1926), 29-57, 45 tables.

Sockeye; Fraser R., Rivers Inlet, Skeena, Nass R.; time young spend in freshwater; age at time of return; size of species at time of return; sex ratios; racial analysis, detailed data.

Clemens, Wilbert A., and 1928
Clemens, Lucy S.

Contributions to the life history of the sockeye salmon (No. 13). Rept. Comm. Fish. Prov. B. C. (1927), 16-38, 31 tables.

Sockeye; Fraser R., Rivers Inlet, Skeena, Nass R.; age at time of return; size of species at time of return; sex ratios; time young spend in freshwater; racial analysis, detailed data.

Clemens, Wilbert A., and 1929
Clemens, Lucy S.

Contributions to the life history of the sockeye salmon (No. 14). Rept. Comm. Fish. Prov. B. C. (1927), 19-43, 31 tables.

Sockeye; Fraser R., Rivers Inlet, Skeena, Nass R.; age at time of return; time young spend in freshwater; size of species at time of return; sex ratios; racial analysis, detailed data.

Clemens, Wilbert A., and 1930
Clemens, Lucy S.

Contributions to the life history of the sockeye salmon (No. 15). Rept. Comm. Fish. Prov. B. C. (1929), 17-43, 33 tables.

Sockeye; Fraser R., Rivers Inlet, Skeena, Nass R.; age at time of return; time young spend in freshwater; size of species at time of return; sex ratios; racial analysis, detailed data.

Clemens, Wilbert A., and 1931
Clemens, Lucy S.

Contributions to the life history of the sockeye salmon (No. 16). Rept. Comm. Fish. Prov. B. C. (1930), 14-41, 34 tables.

Sockeye; Fraser R., Rivers Inlet, Skeena, Nass R.; age at time of return (age groups); time young spend in freshwater; sex ratios; size of species at time of return; racial analysis, detailed data.

Clemens, Wilbert A., and 1932a
Clemens, Lucy S.

Contributions to the life history of the sockeye salmon (No. 17). Rept. Comm. Fish. Prov. B. C. (1931), 13-37.

Sockeye; Fraser R., Rivers Inlet, Skeena, Nass R.; age at time of return; time young spend in freshwater; size of species at time of return; sex ratios; racial analysis, detailed data.

Clemens, W. A., and Clemens, 1932b
L. S.

Statistical study of sockeye salmon runs. Ann. Rept., Biol. Bd. Can. (1931), 70.

Sockeye; Fraser, Skeena, Nass R., Rivers Inlet, Can.; age at time of return.

Clemens, Wilbert A., and 1933
Clemens, Lucy S.

Contributions to the life history of the sockeye salmon (No. 18). Rept. Comm. Fish. Prov. B. C., 13-49, 37 tables.

Sockeye; Fraser, Skeena, Nass R., Rivers Inlet; size of species at time of return; age at time of return (age groups); sex ratios; time young spend in freshwater; racial analysis, detailed data.

- Clemens, Wilbert A., and 1934
Clemens, Lucy S.
- Contributions to the life history of the sockeye salmon. Rept. Comm. Fish. (No. 19) Prov. B. C. (1933), 12-47, 34 tables.
- Sockeye; Fraser, Skeena, Nass R., Rivers Inlet; age at time of return (age groups); time young spend in freshwater; size of species at time of return; racial analysis, detailed data; sex ratios.
- Clemens, Wilbert A., and 1935
Clemens, Lucy S.
- Contributions to the life history of the sockeye salmon (No. 20). Rept. Comm. Fish. Prov. B. C. (1934), 20-58, 4 figs., 31 tables.
- Sockeye; Fraser, Skeena, Nass R., Rivers Inlet; age at time of return (age groups); size of species at time of return; sex ratios; time young spend in freshwater; racial analysis, detailed data.
- Clemens, Wilbert A., and 1936
Clemens, Lucy S.
- Contributions to the life history of the sockeye salmon (No. 21). Rept. Comm. Fish. Prov. B. C. (1935), 21-44, 29 tables.
- Sockeye; Fraser, Skeena, Nass R., Rivers Inlet; age at time of return; size at time of return; sex ratios; time young spend in freshwater; racial analysis, detailed data.
- Clemens, Wilbert A., and 1937
Clemens, Lucy S.
- Contributions to the life history of the sockeye salmon (No. 22). Rept. Provincial Fish. Dept. Prov. B. C. (1936), 26-44, 26 tables.
- Sockeye; Fraser, Skeena, Nass R., Rivers Inlet; age at time of return (age groups); size at time of return; sex ratios; time young spend in freshwater; racial analysis, detailed data.
- Clemens, W. A., Foerster, 1938
R. E., Carter, N. M., Rawson,
D. S.
- A contribution to the limnology of Shuswap Lake, British Columbia. Rept. Provincial Fish. Dept. Prov. B. C. (1937), 91-97, 3 figs., 2 tables.
- O. tshawytscha, spring; O. kisutch, coho; O. nerka, sockeye; O. nerka kennerlyi, kokanee; Shuswap Lake, B. C.; food & feeding habits; time of seaward migration; time young spend in freshwater; time species migrates upstream.
- Clemens, W. A., Foerster, 1939
R. E., Pritchard, A. L.
- The migration of Pacific salmon in British Columbia waters, (in) The migration and conservation of salmon. Amer. Assoc. for Advancement Sci. (No. 8): 51-59.
- Spring; sockeye; pink; coho; B. C.; tagging & recapture data, migration routes; racial analysis, comments only; measurements.
- Clothier, Charles R. 1950
- A key to some Southern California fishes based on vertebral characters. Cal. Fish & Game, Fish. Bull. (79): 83 pp., 22 figs., 23 plates.
- O. tshawytscha (sic), king; vertebral counts; comparisons (key); between Pt. Conception & San Diego.
- Cobb, John N., and Kutchin, 1907
Howard M.
- The fisheries of Alaska in 1906. Rept. U. S. Fur. Fish., Bur. Fish. (618): 3-70.
- Humpback; king; sockeye; coho; dog; Alaska; time species returns from ocean to stream mouth; distribution.

The king salmon of Alaska. Trans. Amer. Fish. Soc., 38: 124-128.

O. tschawytscha (sic), king; color (flesh); range, Alaska; food;

The king salmon of Alaska. Trans. Amer. Fish. Soc., (39th) Ann. Meet. (1909), 124-129.

(sic)

O. tschawytscha, king, chinook, quinnat; Alaska; distribution; food; time species migrates upstream; measurements; size of species at time of return.

The salmon fisheries of the Pacific Coast. Rept. U. S. Bur. Fish. (1910), Bur. Fish. (751), 179 pp., tables.

O. tschawytscha (sic), quinnat, tyee, chinook, spring, king; O. nerka, blueback, red, sukkegh, sockeye; O. kisutch, silver, coho, white; O. keta; dog, chum; O. gorbuscha, humpback; Pac. coast; range; color; weight at time of return; time species migrates upstream; distribution; intro. & acclim.: Klamath R., Redwood Cr., Mad R. & N. Fork, Eel R., Russian R., Skaggs Springs, Marin County, Truckee R., etc., Calif., Oreg., Wash.

Pacific salmon fisheries. Rept. Comm. Fish. U. S. Bur. Fish. (1916), (839): 255 pp., 29 plates.

O. masou, masu; O. tschawytscha (sic), quinnat, tyee, chinook, spring, king; O. nerka, blueback, red, sukkegh, quinnat, sockeye; O. kisutch, silver, coho, white; O. keta, dog, keta, chum, O. gorbuscha, humpback, pink; Pac. coast, U. S., Siberia; range; weight at time of return; color; time species migrates upstream; distribution; food & feeding habits, ocean; figured; age at time of return; movements in ocean; intro. & acclim.: Marin Co. creeks, Pescadero Cr., San Gregorio & Truckee R.

Pacific salmon fisheries (3rd ed.). Rept. Comm'er Fish. U. S. Bur. Fish. (1921), (902): 268 pp., 48 figs.

O. masou, masu; O. tschawytscha, chinook, chavitch, quinnat, king, tyee; O. nerka, blueback, red, sukkegh, krasnaia, sockeye; O. kisutch, silver, kishutch, coho, white; O. keta, dog, keta, sake, chum; O. gorbuscha, humpback, pink; figured; range; color; size of species at time of return; food & feeding habits, ocean; time species migrates upstream; distribution; age at time of return; time young spend in freshwater, movements in ocean; biochemistry; intro. & acclim; distributional data: kamchatka, okhotsk; landlocked O. nerka, hime masu, in Lake Akan, Hokuchu Is.

Pacific salmon fisheries. Rept. Comm'er Fish. U. S. Bur. Fish. (1930), (1092), 409-704, 48 figs., 4th ed.

O. tschawytscha (sic), quinnat, tyee, chinook, spring, king; O. nerka, blueback, red, sukkegh, sockeye; O. kisutch, silver, silverside, coho, white; O. keta, chum, keta; O. gorbuscha, humpback, pink; O. masou, masu, Pac. coast, Siberia, Japan; range; color; size of species at time of return; time species migrates upstream; food & feeding habits, ocean; distribution; figured; age at time of return; movements in ocean; biochemistry; intro. & acclim.; landlocked O. nerka (hime-masu), in Japan.

Age and growth studies on two species of white fishes from Point Barrow, Alaska. Stanford Ichthyological Bull., 4(3): 167-187.

O. keta; Pt. Barrow, Alaska; distribution.

- Coker, R. E. 1922
Progress in biological inquiries, 1921.
Rept. Comm'er Fish. U. S. Bur. Fish.
(1921), (911): 38.

King; chum; coho; humpback; sockeye;
Pac. coast; marking & recapture data;
age at time of return; age groups;
time species migrates upstream; bio-
chemistry.
- Collins, J. A. 1892

Report on fisheries of the Pacific
Coast of the United States. Rept.
Comm'er U. S. Comm. Fish & Fish.
(1888), 3-269, 39 plates.

O. gorbuscha, humpback; O. keta, dog;
O. kisutch, silver; O. nerka, blue-
back, red; O. chouicha, king, chinook;
(footnote: Salmo truncatus, steelhead;
Salmo tsuppitch, white; leather salmon;
Salmo argyreus, silversides; large
white salmon; Salmo canis, dog; Salmo
paucidens, weak-toothed; hybrid, not
classified; Salmo proteus, humpback);
quinnat; Sacramento, San Joaquin R.;
figured; time species migrates upstream;
size at time of return (approx.); dis-
tribution; synonymy.
- Collison, J. M., and 1917
Hickman, C. P.

The spawning beds of Nass River. Rept.
Comm. Fish. Prov. B. C. (1916), 26-
27.

Sockeye; Nass R., B. C.; spawning period;
distribution.
- Craig, Joseph A. and Hacker, 1940
Robert L.

The history and development of the fish-
eries of the Columbia River. Bull. U. S.
Bur. Fish., 49: 153-216, 16 figs., 27 tbl.

O. tschawytscha (sic), chinook; O. kisutch,
silver; O. nerka, blueback, sockeye, red; O.
keta, chum; spawning behavior; Wash.
- Craig, Joseph A., and 1946
Townsend, Lawrence E.

An investigation of fish-mainte-
nance problems in relation to the
Willamette valley project. Spec.
Sci. Rept. U. S. Fish & Wildlife
Serv. (33): 1-78, 10 figs., 27 tables.

Chinook; Willamette valley, Oreg.;
general life history; racial analy-
sis, comments; time species mi-
grates upstream; spawning period;
size at time of seaward migration;
time young spend in freshwater; dis-
tribution.
- Craigie, E. Horne 1926

A preliminary experiment upon the
relationship of the olfactory sense
to the migration of the sockeye sal-
mon (Oncorhynchus nerka Walbaum).
Trans. Roy. Soc. Can., 20(ser. 3):
215-224.

O. nerka, sockeye; O. kisutch, coho;
Fraser R., B. C.; age at time of re-
turn; home stream theory; racial
analysis, comments only; marking &
recapture data, migration routes;
distribution.
- Cramer, Frederick K., and 1952
Hammack, David F.

Salmon research at Deer Creek, Cali-
fornia. Spec. Sci. Rept. Fish. U.
S. Fish & Wildlife Serv. (67), 1-
16, 7 tables.

Salmon; spawning period; sex ratios;
time of seaward migration,

- Crawford, D. R. 1925
Field characters identifying young Salmonoid fishes in fresh waters of Washington. Fish. Univ. Wash. Publications, 1(2): 64-76, 13 figs., 1 plate.
(sic)
O. tschawytscha, chinook, spring, king, tyee; O. kisutch, coho, silver, pink, blackmouth; O. keta, chum, dog, black, calicoe; O. gorbuscha, humpback, pink; O. nerka, sockeye, red, blueback; O. nerka kennerlyi, little redfish, silver trout; Wash. state; description; color; figured; measurements.
- Crawford, D. R. 1927
Notice of Hermaphroditism in silver salmon, Oncorhynchus kisutch. Copeia (1927), (163): 34.
O. kisutch, silver salmon, Chehalis R., Wash.; hermaphroditism.
- Crawford, John M. 1907
Some plain truths relative to propagation. Pacific Fisherman, 5(3): 9-11.
O. nerka, blueback sockeye, Baker R., quinalt, red; chinook, quinnat; west coast waters; home stream theory; distribution.
- Crawford, John M. 1908
To preserve the salmon of the Columbia. Pacific Fisherman, 6(2): 14-16.
Chinook; blueback, silversides; dog; humpback; Columbia R.; time species migrates upstream; nature of spawning site; spawning behavior; time eggs hatch;
- Crocker, Richard S. 1936
King salmon in Southern California, 1936. Cal. Fish & Game, 22:323.
O. tschawytscha (sic), king; distribution; Santa Monica Bay, La Jolla, San Clemente, Calif.
- Curtis, Brian 1945
Fisheries and the Central Valley project. Cal. Fish & Game, 31: 102-113.
Calif.; distribution; time species migrates upstream; type of stream chosen; nature of spawning site; time of seaward migration; length at time of seaward migration; marking (tagging) & recapture data, segregation of population.
- Curtis, Brian 1946
Twenty-five years ago in California Fish and Game. Cal. Fish & Game, 32: 29-30.
Salmon; distribution.
- Curtis, Brian, and Fraser, J.C. 1948
Kokanee in California. Cal. Fish & Game, 34: 111-114, 1 fig.
O. nerka kennerlyi, kokanee, sockeye, red, little redfish, silver trout; counts & measurements; distribution; time species migrates upstream (landlocked fish); length of species at time of return; age at time of return; type of stream chosen; spawning period; nature of spawning site; spawning behavior; post-spawning behavior; time young spend in fresh-water; growth rates, determined by direct measurement; feeding habits, lakes; intro. & acclim.; figured.
- D--
- Davidson, Frederick A. 1935
The development of the secondary characters in the pink salmon (O. gorbuscha). Amer. Jr. Anat., 57: 169-183, 6 figs., 2 tables.
O. gorbuscha, pink, humpback; S. E. Alaska; sexual dimorphism, body changes; measurements; figured.

- Davidson, F. A. 1940a
Age, growth, and seasonal time of migration of the Pacific salmon as an indication of environmental conditions in the sea. Proc. (6th) Pac. Sci. Cong. (1939), 3: 533.
- Pink; red, sockeye; Alaska; spawning period; time eggs hatch; time species migrates upstream; age at time of return.
- Davidson, Frederick A. 1940b
The homing instinct and age at maturity of the pink salmon (Oncorhynchus gorbuscha). Bull. U. S. Bur. Fish., 48: 27-39, 10 figs., 1 plate.
- O. gorbuscha, pink; Duckabush R., Wash., & Snake Cr., Olive Cove, Alas.; time of spawning; time young migrate seaward; marking & recapture data; home stream theory; age at maturity in New Eng.; age at time of return; time species migrates upstream.
- Davidson, F. A. 1940c
Marine ecology of the Pacific salmon. Proc. (6th) Pac. Sci. Cong. (1939), 3: 263-264.
- O. tschawytscha (sic), king; O. nerka, sockeye; O. kisutch, coho; O. gorbuscha, pink; O. keta, chum; ocean; movements in ocean; distribution.
- Davidson, Frederick A., and Christey, Leroy S. 1940
The migrations of pink salmon (Oncorhynchus gorbuscha) in the Clarence and Summer Straits regions of southeastern Alaska. Bull. U. S. Bur. Fish., 48: 643-666, 5 figs., 8 tables.
- O. gorbuscha, pink; Clarence, Summer Straits, S. E. Alaska; time species migrates upstream; tagging & recapture data; migration routes; distance travelled upstream.
- Davidson, F. A., and Hutchinson, S. J. 1937
The influence of natural conditions on the geographic distribution of the Pacific salmon. Prog. Fish Cult., (30): 24-34.
- O. tschawytscha (sic), chinook; O. gorbuscha, pink; O. kisutch, coho; O. nerka, sockeye; range; intro. & acclim.: Finland, N. European countries, S. coastal regions, U. S.: Me., Lake Ontario, Can., tributaries, New Brunswick, Can., New Zealand, New Brunswick area lakes, Tasmania, Chile, Argentina, Hawaii, Australia, Tasmania.
- Davidson, Frederick A., and Hutchinson, Samuel J. 1940
The geographic distribution and environmental limitations of the Pacific salmon (genus Oncorhynchus). Bull. U.S. Bur. Fish., 38: 667-692, 9 figs., 2 tables.
- O. tschawytscha (sic), chinook, king; O. nerka, sockeye, red; O. kisutch, coho, silver; O. gorbuscha, pink, humpback; O. keta, chum, dog; general life history; range; tolerable temp. range for spawning & developing; limiting factors in marine habitat; movements in ocean; distribution; intro. & acclim.: Maine, Ontario, N. Brunswick, Tasmania, Chile, N. Zealand.
- Davidson, F.A., and Hutchinson, S.J. 1942
Natural reproduction of pink salmon studied at Little Port Walter, Alaska. Ecology, 23: 284-285.
- pink; distribution; Little Port Walter, Alaska; time species returns from ocean to stream mouth; age at time of return; type of stream chosen; distance travelled upstream; nature of spawning site; time of seaward migration.

Davidson, Frederick A.,
and Shostrom, O. Eugene

1936

Physical and chemical changes in the pink salmon during the spawning migration. U.S. Bur. Fisheries, Investigational Rept. No. 33, 2: 1-37, 15 figs, 9 tables.

sockeye; coho; king, chinook; chum; O. gorbuscha, pink, humpback; Alaska esp. Olive Cove; range; counts & measurements; sexual dimorphism; figured; description; anatomy; histological; biochemistry; racial analysis - comments only; age at time of return.

Davidson, F.A., and
Vaughan, A.E.

1939a

Cyclic changes in time of Southeast Alaska pink salmon runs. Pacific Fisherman, 37 (2): 22-24, 2 charts.

pink; Alaska; time species migrates upstream.

Davidson, F.A., and
Vaughan, A.E.

1939b

Cyclic change in time of Southeast Alaska pink salmon runs. Part 2. Pacific Fisherman, 37 (3): 40-42, 2 charts.

king; coho; pink; Southeast Alaska; time eggs hatch; time young spend in freshwater; home stream theory; age at time of return.

Davidson, F.A., and
Vaughan, A.E.

1939c

Cyclic Changes in time of Southeast Alaska pink salmon runs. Part 3. Pacific Fisherman, 37 (4): 39.

pink; Southeast Alaska; segregation of populations; spawning period.

Davidson, F.A.,
Vaughan, Elizabeth

1941

Relation of population size to marine growth and time of spawning migration in the pink salmon (O. gorbuscha) of Southeastern Alaska. J. Mar. Res., Sears Foundation for Mar. Res., 4: 231-246, 1 fig., 1 table.

O. gorbuscha, pink; king; coho; distribution; Clarence Strait, S.E. Alaska; time the species returns from ocean to stream mouth; time species migrates upstream; length of species at time of return; age at time of return; type of stream chosen; spawning period; sexual dimorphism; body changes; behavior of fry & fingerlings; time of seaward migration; time young spend in freshwater; movements in ocean; growth rates, determined by direct measurement; food & feeding habits, ocean; home stream theory.

Davidson, F.A., Vaughan,
Elizabeth, and Hutchinson, S.J.

1943

Factors influencing the upstream migration of the pink salmon (O. gorbuscha) Ecology, 24(2): 149-168.

pink; coho; chum; range; distribution; Sashin Creek, Snake Creek, S.E. Alaska, McClinton Creek, B.C.; time species returns from ocean to stream mouth; time species migrates upstream; age at time of return; type of stream chosen; distance travelled upstream; spawning period; nature of spawning site; sexual dimorphism, body changes, time of first appearance.

Davis, H.S.

1927a

Schizamoeba salmonis, a new ameba parasitic in Salmonid fishes. Bull. U.S. Bur. Fish, 42: 1-8, 40 figs.

O. tschawytscha (sic), chinook; O. kitchutch, silver; internal parasite, stomach: Schizamoeba salmonis, Davis.

- Davis, H.S. 1927b DeBellesme, Jousset 1896
- Octomitus salmonis, a parasitic flagellate of trout Bull. U.S. Bur. Fish, 42: 9-26, 57 figs.
- O. tschawytscha, chinook; O. kisutch, silver; internal parasite of intestine of fingerlings (Octomitus salmonis).
- New method of pond culture. Trans. Amer. Fish. Soc., 25: 69-87. (Translated by Dr. Tarleton H. Bean, by permission of the author).
- Salmo quinnat, California salmon; intro. & acclim.: France; nature of spawning site: landlocked; spawning period; time eggs hatch; growth rates.
- Davis, H.S. 1953
- Culture and diseases of game fishes. Univ. Calif. Press, Berkeley & Los Angeles, 332 pages.
- O. keta, chum; O. gorbuscha, pink; O. kisutch, silver; O. nerka, blueback, red; O. tschawytscha (sic), chinook, king; time young spend in freshwater (p. 90); external parasites, glochidia of Margaratifera margaratifera falacata (on chinook but not on O. nerka).
- A survey of the coast cutthroat trout, Salmo clarki clarki, Richardson, in California. Cal. Fish & Game, 40: 329-335.
- O. kisutch, silver; O. tschawytscha, king; Prairie Creek, Calif.; distribution.
- Davison, Robert C., 1954
- Breese, Wilber, and Katz, Max
- The haemoflagellate, Cryptobia selmositica, in Oregon salmon. J. of Par., 40: 703-704.
- O. kisutch, silver; O. tschawytscha (sic), king; distribution; time of seaward migration; time species migrates upstream; parasites, internal.
- Dill, William A. 1946
- A preliminary report on the fishery of Millerton Lake, California. Cal. Fish & Game, 32: 49-69.
- O. tschawytscha (sic) king; distribution; Millerton Lake, Calif.
- DeLacy, Allen C., and 1947
- Neave, Ferris
- Migration of pink salmon in southern British Columbia and Washington in 1945. Bull. Fish. Res. Bd. Can., No. 74, 1-11, 2 figs., 4 tables.
- O. gorbuscha, pink; southern Brit. Col.; tagging & recapture data; rate of travel; migration routes.
- Dombroski, E. 1952
- Sockeye smolts from Babine Lake in 1951. Progr. Rept. Pac. Coast Stas. Fish. Res. Bd. Can., No. 91, 21-26, 10 figs., 2 tables.
- O. nerka, sockeye; Babine Lake, B.C.; size at time of return; age at time of return.
- Dombroski, E. 1954
- The sizes of Babine Lake sockeye salmon smolt emigrants, 1950-1953. Progr. Rept. Pac. Coast Stas. Fish. Res. Bd. Can., No. 99 (1954), 3-34, 5 figs., 3 tables.
- sockeye; Lakelse Lake, Babine Lake, B.C.; age at time of return; size at time of return.

- Dombrowski, E. 1955
Cestode and nematode infection of sockeye smolts from Babine Lake, British Columbia. J. Fish. Res. Bd. Can., 12: 93-96, 1 table.
- O. nerka, sockeye; Babine Lake, B.C.; smolts with parasites of cestode Eubothrium salvelini (Schrans. 1790) & nematode (Philonema oncorhynchi - Kuitunin-Ekbaum), 1933.
- Duff, D.C.B. 1932a
Furunculosis on the Pacific Coast. Trans. Amer. Fish. Soc., 62: 249-255.
- O. nerka, sockeye; O. keta, chum; hybridization: O. nerka x O. keta; parasite, internal: Bacillus salmonicida, furunculosis, Brit. Col.; bacterium.
- Duff, D.C.B. 1932b
Investigations on causes of disease in salmonida. Ann. Rept. Biol. Bd. Can. (1931), 70.
- sockeye; Cultus Lake, Canada; parasites: costia necatrix, bacterium.
- Dunn, Horace D. (with notes by Stone, Livingston) 1880
Do the spawning salmon ascending the Sacramento River all die without returning to the sea? Rept. Comm'r for 1878, U.S. Comm. Fish & Fish., 815.
- Salmo ginnat, California salmon; Sacramento R., San Joaquin R., Calif.; post spawning behavior; time species returns from ocean to stream mouth.
- Dunlop, H.A. 1924
The growth-rate of the scales in the sockeye salmon, Oncorhynchus nerka. Contrib. Can. Biol., N.S., 2: 151-159, 2 figs.
- O. nerka, sockeye; racial analysis; growth rates from scales.
- Dyer, W.J. 1952
Amines in fish muscle. VI. Trimethylamine oxide content of fish and marine invertebrates. J. Fish. Res. Bd. Can., 8: 314-324, 3 tables.
- Dyer, W.J. (cont.) 1952
O. tschawytscha (sic), king, spring; O. kisutch, silver; biochemical; trimethylamine oxide for O. tschawytscha, O. kisutch, also for Salmo salar, which has very similar oxide content.
- Dymond, J.R. 1932
The trout and other game fishes of British Columbia. Dept. Fisheries, 1-51, 3 figs., 7 colored plates; 2 drawings.
- O. tschawytscha (sic), chinook, tyee, king; O. kisutch, coho; O. nerka kennerlyi, kokanee, kikanniny, silver, little redbfish, Kennerly's salmon, Kennerly's trout; distribution; size at time of return; spawning period; probable age at maturity.
- Dymond, J.R. 1934
The distribution and relationship of the salmonid fishes of North America and North Asia. Proc. Fifth Sci. Cong. (1933), 5: 3741-3750.
- Oncorhynchus; humpback; keta; North Amer. & North Asia; distribution; (Formosa trout, Jordan & Oshima, 1919, belongs to Oncorhynchus; no ref. given).
- Dymond, J.R. 1936
Some freshwater fishes of British Columbia. Rept. Comm. Fish., 1935, Prov. Brit. Col., 60-73.
- O. nerka kennerlyi, kokanee; Brit. Col.; distribution; weight at time of spawning; food & feeding habits; counts & measurements.
- Dymond, J.R. 1940
O. keta, dog; O. gorbuscha, humpback; MacKenzie R., Can.; Lena R., Siberia; distribution; time species migrates upstream.

Earp, B.J., Ellis, C.H.,
and Ordal, E.J. 1953

Kidney disease in young salmon. State
Wash. Dept. Fish. Special Rept. Series
No. 1, 1-74, 9 figs., 28 tables.

O. tschawytscha (sic), chinook; O. kisutch,
silver; O. keta, chum; O. nerka, blue-
back, sockeye; O. gorbuscha, pink;
Washington; parasites; bacteria; time
young spend in freshwater.

The food fishes of the California
fresh waters. Biennial Rept. State
Bd. Fish Comm'ers, State of Calif.,
(1888-1890), 53-65.

O. gorbuscha, humpback; O. keta,
dog; O. tschawytscha (sic), Alaska,
king, Columbia, quinnat; O. kisutch,
silver; Calif.; color; description;
distribution; weight at time of return;
intro. & acclim.: England, France,
Germany, Belgium, Denmark, Russia,
Australia, New Zealand.

Earp, B.J., and Schwab, R.L. 1954

An infestation of leeches on salmon
fry and eggs. Prog. Fish Cult., 16:
122-123.

O. gorbuscha, pink; O. kisutch, silver;
O. keta, chum; Hood Canal State Salmon
Hatchery, Washington; parasites; fry
figured.

Eigenmann, Carl H.

1895

Results of explorations in Western
Canada and the Northwestern United
States. Bull U.S. Fish Comm., 14:
101-132, plates 6-8, tables.

O. tschawytscha (sic); distribution;
Oncorhynchus, anal ray number com-
pared with Salmo salar.

Edson, Q., Huizer, E., 1955
Kirkness, W., Parker R., Thorson, K.,
and Vincent, R.

Biological research. Ann. Rept. No. 6,
Alaska Fish. Bd., 22-43.

king; red; pink; silver; chum; Taku R.,
Alaska; time species migrates upstream;
age at time of return; catch records
(wheel catches).

Einarsen, Arthur S.

1927

Economic factors in the salt-water
rearing of salmon. Trans. Amer.
Fish Soc., 57: 288-293.

O. keta, chum; O. gorbuscha, pink;
food & feeding habits of fry in
saltwater ponds.

Eguchi, Suyeo

1934

On the secondary intermediate host of
Diphyllbothrium latum in Japan, with
special reference to fishes of the
genus Oncorhynchus. Proc. Fifth Pac.
Sci. Cong. (1933), 5: 4145-4149.

O. perryi, masu; O. masou, masu;
O. gorbuscha, karafuto-masu; O. keta,
seke; O. nerka, beni-masu; O. tschawytscha
(sic), masunosuke; O. macrostomus,
amago; Japan; parasites - internal;
Diphyllbothrium latum, cestode.

Ekbaum, Ella

1936

Notes on the genus Cystidicola in
Canadian fishes. The Canadian Field-
Nat., 50: 8-11.

O. kisutch, coho; distribution;
Strait of Georgia, B.C.; parasites-
internal; time species returns from
ocean to stream mouth.

Elling, Carl H., and
Macy, Paul T.

1955

Pink salmon tagging experiments in
Icy Strait and Upper Chatham Strait.
Fish Bull. U.S. Fish & Wildlife Service,
56: 331-371, 11 figs., 12 tables.

O. gorbuscha, pink; Icy Strait &
Upper Chatham Strait, Southeastern
Alaska; tagging and recapture data;
distribution.

Ellis, C.H., Schaefer, Milner 1937
B., and Erickson, Donald W.

Statistics of the 1936 salmon fishery
in the State of Washington. Dept. of
Fisheries State of Washington. Bull.
No. 36A., 1-12, 21 figs., 4 tables.

O. tschawytscha (sic), chinook, tyee,
king; O. kisutch, silver, coho; O.
gorbuscha, humpback, pink; O. keta,
chum, dog; O. nerka, sockeye, blueback;
Wash.; catch records.

Erkkila, Leo E., Moffett, 1950
James W., Cope, Oliver B., Smith,
Bernard R., and Nielson, Reed S.

Sacramento-San Joaquin Delta fishery
resources: effects of Tracy dumping
plant on Delta cross channel. Spec.
Sci. Repts., Fisheries, U.S. Fish
& Wildl. Serv., (56), 1-109, 12 figs.,
27 tables.

O. tschawytscha (sic), king; Sacramento-
San Joaquin Rivers, Calif.; time species
migrates upstream; tagging & recapture
data; migration routes; time of seaward
migration; size at time of seaward
migration.

Evermann, Barton W.

1896

A preliminary report upon the
investigations in Idaho in 1894.
Bull. U.S. Fish Comm., 15: 253-284,
tables.

O. tschawytscha (sic), chinook; O.
nerka, blueback, redfish (of Idaho);
Idaho; weight at time of return;
spawning behavior; other common names
for kings in Idaho: dog, silver,
silversides; salmon belly; p. 265;
O. kennerlyi, Kennerly's salmon;
Idaho; redfish in Alturas, Redfish,
Petitt, Stanley, & Big Payette lakes;
sex ratios; distribution; spawning
period; color and pattern; nature of
spawning site (p. 265); spawning
behavior.

Evermann, Barton Warren

1897

Salmon investigations in the head-
waters of the Columbia River, in the
state of Idaho, in 1895, together with
notes upon the fishes observed in that
state in 1894 and 1895. Bull. U.S.
Fish Comm., 16: 149-202, plates 67-72,
tables.

O. nerka, redfish, blueback, Fraser
River salmon, Saro-qui, seukeye, Kras-
naya Ryba, Walla; O. nerka kennerlyi;
O. tschawytscha, (sic), chinook, quinnat,
dog of Idaho; headwaters of Salmon
River; post spawning behavior; time
young spend in freshwater; figured;
comparisons; size at time of return;
spawning period; time eggs hatch; time
of seaward migration; color; time species
migrates upstream; spawning behavior;
synonymy; counts & measurements;
description.

Report on inquiry respecting food fishes and the fishing grounds. Rep. Comm'ier for 1904, U.S. Comm. Fish and Fish., 81-120.

O. tschawytscha (sic), chinook, king, spring, quinnat, Columbia R. salmon, Sacramento R. salmon, tyee, tschavitch; O. kisutch, silver, silversides, coho, kisutch, bielaya ryba; O. gorbuscha, humpback, gorbuscha, pink; O. keta, dog, calico, hayko (Russians), sake (Japan); Pacific coast; approx. size at time of return; spawning behavior; nature of spawning site; type of stream chosen; time species migrates upstream; distribution; description; color; small form of red salmon, p. 190; distance travelled upstream.

Evermann, Barton Warren,
and Clark, Howard Walton

1931

A distributional list of the species of freshwater fishes known to occur in California. Calif. Fish. Game, Fish Bull. no. 35, 1-67.

O. gorbuscha, humpback; O. keta, dog, hayko, le kai, calico, chum; O. kisutch, silver, kisutch, skowitz, hoopid, coho, bielaya ryba, quistuch, tschaviche; O. tschawytscha (sic), chinook, quinnat, tchaviche, king, Columbia R. salmon, spring, Sacramento R. salmon, tyee, tschawytsche; distribution (in California).

Evermann, Barton Warren,
and Goldsborough, Edmund

1907a

A checklist of the freshwater fishes of Canada. Proc. Biol. Soc. Wash., 20: 89-119.

O. gorbuscha, humpback; O. tschawytscha (sic); O. nerka, sockeye; O. kisutch, coho; Canada; distribution.

Evermann, Barton Warren,
and Goldsborough, Edmund Lee

1907b

The fishes of Alaska Bull. U.S. Bur. Fish, 26: 219-360, 44 figs., plates. XIV-XLIII.

O. gorbuscha, humpback, pink, O. keta, dog, chum, calico; O. tschawytscha (sic), chinook, king, quinnat; O. kisutch, silver, coho; O. nerka, red, redfish, sockeye, blueback; ty pe of stream chosen; distribution; leaping; distance travelled upstream; time species migrates upstream; size at time of return; racial analysis- p. 239, top; figured in color; sexual dimorphism; additional common names; white & red meat ed king salmon, p. 247.

Evermann, Barton Warren,
and Latimer, Homer Barker

1910

On a collection of fishes from the Olympic Peninsula, together with notes on other West Coast species. Proc. Biol. Soc. Wash., 23: 131-140.

O. tschawytscha (sic), chinook; O. kisutch, silver; O. nerka, blueback; Calif. (Papermill Cr., Bear Valley Cr., Olima Cr., Tomales Bay, Nicasio Cr., Walker Cr.); Washington; distribution.

Evermann, Barton Warren,
and Meek, Seth Eugene

1898

A report upon salmon investigations in the Columbia River Basin and elsewhere on the Pacific coast in 1896. Bull. U.S. Fish. Comm., 17: 1-84, 6 figs., tables, 2 plates.

O. keta, dog; O. tschawytscha (sic), chinook, O. kisutch, silver; O. nerka, blueback, redfish, sockeye; O. nerka kennnerlyi; Alturus Lake, Idaho; Wal- lowa L., Ore., Lower Columbia Riv; Puget Sound; spawning period; time eggs hatch; time species migrates up- stream; distribution; post spawning be- havior; time young remain in freshwater; sex ratios; size at time of return; similarity of spawning of large & small forms of redfish; time young redfish remain in Alturus L.

- Evermann, Barton Warren, 1896
and Scovell, J.T.
- Recent investigations concerning the
redfish, Oncorhynchus nerka, at its
spawning grounds in Idaho. Indiana
Acad. Sci., proc., 1895, 131-134.
- F--
- Fallers, Carl R. 1926
- Bacteriological investigations on raw
salmon spoilage. Fisheries, Wash.
Univ. Publications, 1: 157-188.
- king; pink; chum; sockeye; coho;
Blaine, Wash.; biochemistry; internal
parasites: bacteria.
- Farr, S.C. 1883
- Description of a California salmon
(Oncorhynchus sp.) found in one of the
rivers of New Zealand, and identified
by Dr. T.H. Bean. Bull. U.S. Fish.
Comm., 3: 427.
- Oncorhynchus sp., California salmon;
intro & acclim.: New Zealand; des-
cription; counts & measurements.
- Fish, Frederic F. 1939
- Observations on Henneburya salmini-
cola Ward, a myxosporidian parasitic
in Pacific salmon. J. of Parasitology,
25: 169-172, 1 table.
- O. gorbuscha, pink; O. kisutch, silver;
O. tschawytscha (sic), chinook; O. keta,
chum; O. nerka, sockeye; distribution;
parasites: internal; food and feeding
habits.
- Fish, Frederic F. 1948
- A report upon the Grand Coulee
fish-maintenance project 1939-1947.
U.S. Fish & Wildlife Service, Rep
No. 55, pp. 1-63.
- O. tschawytscha (sic), chinook; O.
nerka, blueback; O. kisutch, silver;
distribution; Grand Coulee Dam,
Columbia R., Wash.; time species
migrates upstream; age at time of
return; type of stream chosen; spawn-
ing period; tagging & recapture data;
time of seaward migration; counts of
migrant adults.
- Fisher, Wm. J. 1884
- Statement of the catch of the seve-
ral companies engaged in the salmon
fisheries in Kodiak district, Alaska
territory, during the year 1883.
Bull. U.S. Fish Comm., 4: 134.
- red; king; Alaska; distribution.
- Fitch, John E. 1949
- Some unusual occurrences of fish on
the Pacific Coast; Cal. Fish & Game,
35: 41-49.
- O. tshawytscha, king; range; dis-
tribution; Pacific Beach, San Diego
County, Calif.
- Foerster, R. Earle 1925
- Studies in the ecology of the
sockeye salmon (Oncorhynchus nerka).
Contrib. Canad. Biol. M.S. 1925,
2: 335-422, 18 tables, 18 figs.
- O. nerka, sockeye; southwestern
B.C.; time of seaward migration;
behavior of fry & fingerlings; food
& feeding habits.

An investigation of the life history and propagation of the sockeye salmon (Oncorhynchus nerka) at Cultus Lake, British Columbia. No. 1. Introduction and run of 1925. Contrib. Canad. Biol. & Fish. N.S., 5: 3-35, 20 figs., 6 tables.

O. nerka, sockeye; O. kisutch, coho, silver; O. keta, chum, dog; time species migrates upstream; counts & measurements; racial analysis; comments & preliminary data; nature of spawning site; sex ratios; size at time of return; distribution; egg counts; growth rates.

Foerster, R.E.

1929b

An investigation of the life history and propagation of the sockeye salmon (Oncorhynchus nerka), at Cultus Lake, British Columbia. No. 2. The run of 1926. Contrib. Canad. Biol. & Fish. N.S., 5: 37-53, 5 figs, 4 tables

O. nerka, sockeye; size at time of return; age at time of return; growth rates; (artificial) spawning period.

Foerster, R.E.

1929c

An investigation of the life history and propagation of the sockeye salmon (Oncorhynchus nerka) at Cultus Lake, British Columbia. No. 3. The downstream migration of the young in 1926 and 1927. Contrib. Canad. Biol. & Fish. N.S. 5: 55-82, 6 figs., 12 tables, 3 plates.

O. nerka, sockeye; behavior of downstream migrants, fry & fingerlings; time of seaward migration; time young spend in freshwater; size at time of seaward migration; Cultus Lake, B.C.; growth rates (of migrants determined from scales); external parasite, copepod Salminicola gibber.

Notes on the relation of temperature, hydrogen-ion concentration and oxygen, to the migration of adult sockeye salmon. Canad. Field-Nat., 43:(1): 1-4. January. 1 fig.

Not abstracted.

Foerster, R.E.

1929e

A report on the return of sockeye salmon marked at Cultus Lake. Progr. Rept. Biol. Stas. Nanaimo & Rupert. Biol. Bd. of Can., No. 2, 1-10.

sockeye, coho; Cultus Lake, B.C.; marking & recapture data; time species migrates upstream; distribution; segregation of populations; migration routes.

Foerster, R.E.

1930a

The hybridization of salmon. Progr. Rept. Biol. Stas. Nanaimo & Prince Rupert. Biol. Bd. of Can.

sockeye; coho; chum; spring; pink; Cultus Lake, B.C.; hybridization of salmon.

Foerster, R.E.

1930b

The return from the sea in 1929 of sockeye salmon marked at Cultus Lake in 1927. Progr. Rept. Biol. Stas. Nanaimo & Prince Rupert. Biol. Bd. of Can., No. 5, 11-13.

sockeye; Cultus Lake area, B.C.; marking & recapture data.

Experimental tests of the methods used in the artificial spawning and fertilization of sockeye salmon eggs. Progr. Rept. Biol. Stas. Nanaimo & Prince Rupert. Biol. Bd. of Can., No. 14, 5-11, 3 tables.

sockeye; Cultus Lake, B.C.; egg counts.

An investigation of the life history and propagation of the sockeye salmon (*Oncorhynchus nerka*) at Cultus Lake, British Columbia. No. 4. The history cycle of the 1925 year class with natural propagation. Contrib. Canad. Biol. Fish. N.S. 8: 345-355, 2 figs., 2 tables.

O. nerka, sockeye; Cultus Lake, B.C.; time young spend in freshwater; age at time of return; marking & recapture data; size at time of seaward migration.

Inter-specific cross-breeding of Pacific salmon. Trans. Roy. Soc. Canada, Series 3, Sec. 5, 29: 21-33.

O. nerka, sockeye, red; O. kisutch, coho; O. keta, chum; O. tshawytscha (sic), spring, king; O. gorbuscha, pink, humpback; O. masou, cherry; O. formosanus, amago; Cultus Lake, B.C.; time species migrates upstream; type of stream chosen; spawning behavior; distribution; hybrids; description; nature of spawning site; age at time of return; color.

An investigation of the life history and propagation of the sockeye salmon (*Oncorhynchus nerka*) at Cultus Lake, British Columbia. No. 5. The life history cycle of the 1926 year class with artificial propagation involving the liberation of free-swimming fry. J. Biol. Bd. of Can. 2: 311-333, 2 figs., 8 tables.

O. nerka, sockeye; spawning period; egg counts; growth rates; age at time of return; marking & recapture data; time of seaward migration; time young spend in freshwater; size at time of seaward migration.

The return from the sea of sockeye salmon (*Oncorhynchus nerka*) with special reference to percentage survival - sex proportions and progress of migration. J. Biol. Bd. Can., 3: 26-42, 3 figs., 3 tables.

O. nerka, sockeye; marking & recapture data; sex ratios; time young spend in freshwater; age at time of return.

A study of sockeye salmon propagation methods in British Columbia. Prog. Fish Cult., No. 25, Dec., 4-5.

sockeye; Cultus Lake, B.C.; type of stream chosen; nature of spawning site.

The relation of temperature to the seaward migration of young sockeye salmon (*Oncorhynchus nerka*). J. Biol. Bd. Can., 5: 421-438, 3 figs., 3 tables.

O. nerka, sockeye; Cultus Lake; spawning period; time eggs hatch; time young spend in freshwater; food & feeding habits; theories on landlocked origin.

An investigation of the relative efficiencies of natural and artificial propagation of sockeye salmon (Oncorhynchus nerka) at Cultus Lake, British Columbia. J. Fish. Res. Bd. Can., 4: 151-161, 3 tables.

O. nerka, sockeye; Cultus Lake, B.C.; age at time of return; egg counts.

Mortality trend among young sockeye salmon (Oncorhynchus nerka) during various stages of lake residence. J. Fish. Res. Bd. Can., 4: 184-191, 2 figs.

O. nerka, sockeye; size at time of seaward migration; time young spend in freshwater; residual lake sockeye; time of first appearance of free swimming fry.

Salmon investigations, Appendix IV, Report of Pac. Biol. Sta. Nanaimo, B.C. for 1940. Ann. Rept. Fish. Res. Bd. Can. for 1940, 25-27.

pink; spring; coho; sockeye; Brit. Col.; counts of migrant adults; marking & recapture data; home stream theory; food & feeding habits; catch records.

Salmon investigations, Appendix IV, Rept. Pac. Biol. Sta. Nanaimo, B.C. for 1941, Ann. Rept. Fish. Res. Bd. Can. for 1941, 24-25.

pink; coho; spring; Brit. Col.; marking & recapture data on migration routes; food & feeding habits; catch records.

Appendix IV. Rept. for 1942, Pac. Biol. Sta., Nanaimo, B.C. Ann. Rept. Fish. Res. Bd. Can. for 1942, 20-24.

pink; chum; coho; spring; Brit. Col.; counts of migrant adults; age at time of return; catch records; marking & recapture data on migration routes.

Appendix IV. Rept. for 1943, Pac. Biol. Sta., Nanaimo, B.C. Ann. Rept. Fish. Res. Bd. Can. for 1943, 22-26.

pink; coho; Brit. Col.; counts of migrant adults; catch records; marking & recapture data on migration routes; spawning period.

The relation of lake population density to size of young sockeye salmon (Oncorhynchus nerka). J. Fish. Res. Bd. Can. 6: 267-280, 6 figs., 4 tables.

O. nerka, sockeye; Cultus Lake, B.C.; spawning period; time fry emerge; food & feeding habits of fry in lake; time young spend in freshwater; age groups; size at time of seaward migration.

Appendix VII. Rept. for 1944, Pac. Biol. Sta., Nanaimo, B.C., Ann. Rept. Fish. Res. Bd. Can. for 1944, 44-48.

pink; coho; sockeye; Brit. Col.; tagging & recapture data on migration routes; counts of migrant adults.

Appendix VII. Rept. for 1945, Pac. Biol. Sta., Nanaimo, B.C. Ann. Rept. Fish. Res. Bd. Can. for 1945, 47-51.

sockeye; pink; chum; coho; Brit. Col.; tagging & recapture data on migration routes.

Restocking depleted sockeye salmon areas by transfer of eggs. J. Fish. Res. Bd. Can., 6: 483-490, 1 fig., 2 tables.

sockeye; S.W. Brit. Col.; racial analysis - comments; marking & recapture data; home stream theory.

Appendix VII, Rept. for 1946, Pac. Biol. Sta., Nanaimo, B.C. Ann. Rept. Fish. Res. Bd. Can. for 1946, 44-49.

sockeye; coho; spring; pink; chum; Brit. Col.; marking & recapture data on migration routes; counts of migrant adults; catch records.

Experiment to develop sea-run from landlocked sockeye salmon (Oncorhynchus nerka kennerlyi). J. Fish. Res. Bd. Can., 7: 88-92.

O. nerka, sockeye; O. nerka kennerlyi; Kootnay & Cultus lakes, B.C.; marking & recapture data; age at time of return; size at time of return; comparisons - habit & growth rates of anadromous & kokanee type salmon.

Appendix III. Rept. for 1947, Pac. Biol. Sta., Nanaimo, B.C., Ann. Rept. Fish. Res. Bd. Can. for 1947, 54-62.

sockeye; pink; chum; coho; Brit. Col.; marking & recapture data on migration routes; catch records; counts of adult migrants.

Appendix VIII., Rept. for 1948, Pac. Biol. Sta., Nanaimo, B.C.; Ann. Rept. Fish. Res. Bd. Can. for 1948, 67-78.

pink; chum; coho; Brit. Col.; behavior; tagging & recapture data on migration routes; age at time of return.

Appendix IX. Rept. for 1949, Pac. Biol. Sta., Nanaimo, B.C. Ann. Rept. Fish. Res. Bd. Can. for 1949, 71-79

sockeye; coho; pink; chum; Brit. Col.; counts of migrant adults.

The seaward-migrating sockeye and coho salmon from Lakelse Lake, 1952. Progr. Rept Pac. Coast Stas.; Fish. Res. Bd. Can., No. 93, 30-32.

sockeye; coho; Lakelse, B.C.; time of seaward migration.

On the relation of adult sockeye salmon (Oncorhynchus nerka). Returns to known smolt seaward migrations. J. Fish. Res. Bd. Can., 11: 339-350; 5 figs., 2 tables.

O. nerka, sockeye; pink; Cultus Lake, B.C.; counts of migrant adults; counts & measurements.

Sex ratios in sockeye salmon (O. nerka)
J. Fish. Res. Bd. Can., 11: 988-997,
3 tables.

O. nerka, sockeye, red; Cultus Lake,
B.C.; counts of migrant adults; age
at time of return; time young spend in
freshwater; marking & recapture data;
sexual dimorphism.

The Pacific salmon (genus Oncorhynchus)
of the Canadian Pacific coast, with
particular reference to their occurrence
in or near fresh water. Bull. Inter-
nat'l North Pac. Fish. Comm., Bull. No.
1, 1-56, 4 figs.

O. nerka, sockeye; O. gorbuscha, pink;
O. keta, chum; O. tshawytscha (sic),
spring; O. kisutch, coho; racial analy-
sis; age groups; sex ratios; egg counts;
food & feeding habits - lake fry; migra-
tion routes; time species migrates up-
stream; movements in ocean; white & red
springs, p. 35; upper & lower lethal
temp. per species, p. 38; behavior of
fry & fingerlings; hybridization, p. 39;
size at time of return.

The identification of the young of
the five species of Pacific salmon, with
notes on the freshwater phase of their
life history. Rep. Comm. Fish, 1934,
Prov. Brit. Col., 106-116, 1 fig., 2
tables. (Reprinted in report for
1943, pp. 86-97.)

O. gorbuscha, pink, humpback; O. keta,
chum, dog; O. nerka, sockeye, landlocked
form called kokanee or kickininee; O.
tshawytscha (sic), spring; O. kisutch,
coho; counts & measurements; color; dis-
tance travelled upstream; time eggs hatch;
time young spend in freshwater; time of
seaward migration; age at time of return;
length at time of seaward migration; com-
parisons (keys); time species migrates up-
stream; type of stream chosen; figured.

The egg content of Pacific salmon.
Progr. Rept. Biol. Stas., Nanaimo,
& Prince Rupert, B.C. Biol. Bd.
Can., No. 28, 3-5.

sockeye; pink; chym; coho; spring;
Brit. Col.; egg counts.

Observations on the relation of
egg content to total length and
weight in the sockeye salmon (O.
nerka) and the pink salmon (O.
gorbuscha). Trans. Roy. Soc. Can.,
Ser. 3, Sect. 5, 35: 51-60, 4 figs.,
4 tables.

O. nerka, sockeye; O. gorbuscha,
pink, red; Cultus Lake, B.C., Mc-
Clinton Cr., Masset Inlet, Queen
Charlotte Is., B.C.; size at time
of return; egg counts.

The coho salmon of Cultus Lake
and Sweltzer Creek. J. Fish. Res.
Bd. Can., 10: 293-319, 6 figs.,
10 tables.

O. kisutch, coho; age at time of
return; spawning period; time eggs
hatch; time young spend in fresh-
water; age at time of return; size
at time of return; sexual dimorphism;
residual lake coho; parasites: Sal-
minicola on residuals; growth rates;
comparison of residual & anadromous
coho & sockeye; behavior of fry &
fingerlings; time species migrates
upstream; counts of migrant adults;
time of seaward migration.

Lakes of the Skeena River drainage.
V. Bear Lake. Progr. Rep. Pac. Coast
Stas. Fish. Res. Bd. Can., No. 70, 10-12.

- Foskett, D.R. (cont.) 1947a
O. nerka kennerlyi, kokanee; O. nerka, sockeye; O. kisutch, coho; O. tschawytscha (sic), spring; O. gorbuscha, pink; Bear Lake, B.C.; time species migrates upstream; nature of spawning area.
- Foskett, D.R. 1947b
 Lakes of the Skeena River drainage.
 VI. The lakes of the upper Sustut River. Progr. Rept. Pac. Coast Stas.; Fish. Res. Bd. Can., No. 72, 28-32.
O. kisutch, coho; O. nerka, sockeye; O. nerka kennerlyi; Skeena R., B.C.; distribution; nature of spawning site; spawning period.
- Foskett, D.R. 1951a
 Contributions to the life history of the sockeye salmon (No. 38). Rept. Provincial Fish. Dept., 1950, Prov. Brit. Col., 31-50, 34 tables.
 sockeye; Rivers Inlet, Skeena R., Nass R., Smith Inlet, B.C.; age at time of return (age groups); size at time of return; sex ratios; racial analysis - detailed data but no discussion; time young spend in freshwater.
- Foskett, D.R. 1951b
 Young salmon in the Nanaimo area. Progr. Rept. Pac. Coast Stas.; Fish. Res. Bd. Can., No. 86, 18-19.
O. keta, chum; O. tschawytscha (sic), spring; O. kisutch, coho; O. gorbuscha, pink; Nanaimo, B.C.; food & feeding habits.
- Foskett, D.R. 1952a
 Contributions to the life history of the sockeye salmon. No. 37. Rept. Provincial Fish. Dept., 1951, Prov. Brit. Col., 35-56, 25 tables.
 sockeye; Nass R., Rivers Inlet, Smith Inlet; age at time of return (age groups);
- Foskett, D.R. (cont.) 1952a
 size at time of return; sex ratios; time young spend in freshwater; racial analysis - detailed data but no discussion.
- Foskett, D.R. 1952b
 The effect of the Babine slide on the 1951 sockeye run. Progr. Rept. Pac. Coast Stas.; Fish. Res. Bd. Can., No. 90, 9.
 sockeye; Babine R., B.C.; leaping habit.
- Foskett, D.R. 1953
 Contributions to the life history of the sockeye salmon (No. 38). Rept. Provincial Fish. Dept., 1952, Prov. Brit. Col., 55-56, 4 figs., 25 tables.
 sockeye; Nass R., Rivers Inlet, Smith Inlet, B.C.; age at time of return (age groups); size at time of return; sex ratios.
- Foskett, D.R. 1954
 Contributions to the life history of the sockeye salmon (No. 39). Rept. Provincial Fish. Dept., 1953, Prov. Brit. Col., 58-61, 24 tables.
 sockeye; Nass R., Rivers Inlet, Smith Inlet, B.C.; age at time of return (age groups); size at time of return; sex ratios; time young spend in freshwater; racial analysis - detailed data but no discussion.

- Foskett, D.R. 1955a
Age and size of Bella Coola sockeye salmon. Progr. Rept. Pac. Coast Stas. No. 102. Fish. Res. Bd. Can., 16-19, 3 tables.
sockeye; Bella Coola, B.C.; age at time of return; time young spend in freshwater; counts & measurements.
- Foskett, D.R. 1955b
Contributions to the life history of the sockeye salmon (No. 40). Rept. Provincial Fish. Dept., 1954, Prov. Brit. Col., 32-50.
sockeye; Nass R., Skeena R., Rivers Inlet, Smith Inlet, B.C.; age at time of return; size at time of return; sex ratios; time young spend in freshwater; racial analysis - detailed data but no discussion.
- Fowler, Henry W. 1911
Notes on salmonoid and related fishes. Proc. Phila. Acad. Nat. Sci., 65: 551-571.
O. kisutch; O. tshawytscha (sic); O. nerka; distribution.
- Fraser, C. McLean 1916
Growth of the spring salmon. Trans. Pac. Fish. Soc. for 1915, 29-39.
spring; sockeye; Brit. Col.; time young spend in freshwater; food & feeding habits; growth rates from scale studies; racial analysis from scale studies.
- Fraser, C. McLean 1917a
On the life-history of the coho. Contrib. Can. Biol. for 1915-1916, 39-46, 13 figs., plates 5-7.
coho, silver; Departure Bay (creek), Strait of Georgia, B.C.; time species returns from ocean to stream mouth; time species migrates upstream; distance travelled upstream; time eggs hatch; behavior of fry & fingerlings; time of seaward migration; time young spend in freshwater; size at time of seaward migration; movements in ocean; food & feeding habits; growth rates; saltwater & freshwater.
- Fraser, C. McLean 1917b
On the scales of the spring salmon. Contrib. Can. Biol. for 1915-1916, 21-32, 15 figs., 4 plates.
O. tshawytscha (sic), spring, king, tyee, chinook, quinnat; growth rates: saltwater & freshwater, determined by scale studies & direct measurement.
- Fraser, C. McLean 1918
Rearing sockeye salmon in freshwater. Contrib. Can. Biol. for 1917-1918, 105-109, 1 fig.
O. nerka, sockeye; Harrison Lake, B.C.; spawning period; growth rates: freshwater, determined from scales.
- Fraser, C. McLean 1919
Growth rate in the Pacific salmon. Trans. Roy. Soc. Can., Ser. 3, 13 (sect. 5): 163-226, 22 figs.
O. tshawytscha (sic), spring, king, quinnat, chinook, tyee, Columbia R., Sacramento, spring-jack, grilse, sea-trout; O. nerka, sockeye, red, redfish, blueback, quinnat; O. kisutch, coho, silver, silverside, medium red, blueback, grilse; O. gorbuscha, humpback, pink; O. keta, dog, keta, chum; distribution; growth rates: freshwater, determined by scale studies; time young spend in freshwater; home stream theory; age at time of return; length at time of seaward migration; food & feeding habits; sexual dimorphism; color; time of seaward migration; behavior of fry.

- Fraser, C. McLean 1921
Further studies on the growth rate in Pacific salmon. Contrib. Can. Biol. for 1918-1920, 7-27, tables.

spring; sockeye; coho; humpback; dog; Georgia Strait, Fraser R., B.C.; length at time of return; growth rates; migration routes; racial analysis; age at time of return.
- Fraser, C. McLean 1923
Ichthyological notes. Contrib. Can. Biol., N.S., 1923, 1: 285-294, 5 figs.

O. tschawytscha (sic), spring; O. nerka, sockeye; O. kisutch, coho; food & feeding habits.
- Fraser, J.C., and Pollitt, A.F. 1951
The introduction of kokanee red salmon (O. nerka kennerlyi) into Lake Tahoe, California and Nevada. Cal. Fish & Game, 37: 125-127, fig. 63.

O. nerka kennerlyi, kokanee; distribution; length at time of return; type of stream chosen; nature of spawning site; food & feeding habits, lakes; intro. & acclim.: Lake Tahoe, Calif. & Nev.
- Fry, Donald H., Jr., and Hughes, Eldon P. 1951
The California salmon troll fishery. Bull. 2, Pac. Marine Fish. Comm., 7-42, 18 figs., 9 tables.

king; silver; Calif.; catch records; tagging & recapture data on migration routes; movements in ocean; counts & measurements; distribution.
- Fry, Donald H., Jr., and Hughes, Eldon P. 1954
Proportion of king and silver salmon in California's 1952 landings. Cal. Fish & Game. Fish Bull. No. 95 for 1952, 7-13.

O. tschawytscha (sic), king; O. kisutch, silver; Calif.; distribution; age at time of return; range; time species returns from ocean to stream mouth; size at time of return.
- Gangmark, Harold A., and Fulton, Leonard A. 1941
Preliminary surveys of Roosevelt Lake in relation to game fishes. Special Scientific Rept. - Fisheries-U.S. Fish & Wildlife Service, No. 5, 1-29, 4 figs., 10 tables. Processed.

O. nerka kennerlyi, kokanee, landlocked sockeye; Roosevelt Lake, Grand Coulee Dam, ash.; spawning period; distance travelled upstream
- Gangmark, Harold A., and Fulton, Leonard A. 1952
Status of Columbia River blueback salmon runs, 1951. Special Scientific Rept. - Fisheries - U.S. Fish & Wildlife Service, No. 74, 1-29, 9 figs., 8 tables.

O. nerka, blueback; kokanee; Columbia R.; counts at Rock Island & Bonneville Dams; nature of spawning site; migration routes; freshwater; spawning period; distribution; time eggs hatch.

- Gaylord, Harvey R., 1914
and Marsh, Willard C.

Carcinoma of the thyroid in the salmonid fishes. Bull. U.S. Bur. Fish., 32: 367-524, 95 text figs., 14 tables, plates 56-110.

O. gorbuscha, humpback; hybridization: female silver x male humpback; female silver x male chinook; female blueback x male humpback; female humpback x male blueback; thyroid disease.
- Gharrett, John T., 1950
and Hodges, John I.

Salmon fisheries of the coastal rivers of Oregon south of the Columbia. Contrib. Fish. Comm., State of Ore. Contrib. No. 13, 1-20, 16 figs., 4 tables.

O. tshawytscha (sic), chinook; O. kisutch, silver, silverside; O. keta, chum; Oregon Rivers below the Columbia; racial analysis; distribution; time of seaward migration; size at time of seaward migration; catch records.
- Gibson, R. 1921

The spawning beds of the Skeena River. Rept. Comm. Fish. for 1920. Prov. Brit. Col., 2-23.

sockeye; Skeena R., B.C.; spawning period; distribution.
- Gibson, Robert 1922

The spawning beds of the Skeena River. Rept. Comm. Fish., 1921. Prov. Brit. Col., 68-70.

sockeye; humpback; coho; spring; Skeena R., B.C.; spawning period; distribution.
- Gibson, Robert 1923

The spawning beds of the Skeena River. Rept. Comm. Fish., 1922. Prov. Brit. Col., 53-55.

sockeye; humpback; spring; coho; Skeena R., B.C.; spawning period; distribution.
- Gibson, Robert (cont.) 1923

R., B.C.; spawning period; distribution; time species migrates upstream.
- Gibson, Robert 1924

The spawning beds of the Skeena River. Rept. Comm. Fish., 1923. Prov. Brit. Col., 43-45.

sockeye; humpback; Skeena R., B.C.; spawning period; distribution.
- Gibson, Robert 1925

The spawning beds of the Skeena River. Rept. Comm. Fish., 1924. Prov. Brit. Col., 43-45.

sockeye; humpback; spring; Skeena R., B.C.; spawning period; distribution.
- Gibson, Robert 1926

The spawning beds of the Skeena River. Rept. Comm. Fish., 1925. Prov. Brit. Col., 44-46.

sockeye; Skeena R., B.C.; spawning period; distribution.
- Gibson, Robert 1927

The spawning beds of the Skeena River. Rept. Comm. Fish., 1926. Prov. Brit. Col., 62-64.

sockeye; humpback; Skeena R., B.C.; spawning period; distribution.
- Gibson, R. 1928

The spawning beds of the Skeena River. Rept. Comm. Fish., 1927. Prov. Brit. Col., 42.

sockeye; pink; coho; Skeena R., B.C.; spawning period; distribution.

- Gibson, Robert 1899 The spawning beds of the Skeena River. Rept. Comm. Fish., 1928, Prov. Brit. Col., 50-52.
sockeye; pink; coho; Skeena R.; hybridization: pink female crossed with male sockeye, observed; spawning period; distribution.
- Gibson, Robert 1930 The spawning beds of the Skeena River. Rept. Comm. Fish., 1929, Prov. Brit. Col., 54-56.
sockeye; pink; Skeena R., B.C.; spawning period; distribution; sex ratios.
- Gibson, Robert 1931 The spawning beds of the Skeena River. Rept. Comm. Fish., 1930, Prov. Brit. Col., 51-53.
sockeye; pink; Skeena R., B.C.; spawning period; sex ratios; distribution.
- Gibson, Robert 1932 The spawning beds of the Skeena River. Rept. Comm. Fish., 1931, Prov. Brit. Col., 45-46.
sockeye; Skeena R., B.C.; spawning period; distribution.
- Gilbert, Charles H. 1895 The ichthyological collections of the steamer Albatross during the years 1890 and 1891. U.S. Comm. Fish. & Fish. Part XIX. Rept. Comm'r (1893), 393-476, plates 20-35.
O. gorbuscha, humpback; O. tschawyt-scha, quinnat, chinook, king; O. kisutch, silver; O. nerka, blueback, red; time species returns from ocean to stream mouth; movements in ocean; food & feeding habits; distribution; description.
- Gilbert, Charles H. 1913a The Fraser River sockeye run of 1912. Appendix, Rept. Fish. Comm'r for Brit. Col. (1913), 19-24.
sockeye; spring; chinook; Fraser R., B.C.; age at time of return; counts & measurements; time young spend in freshwater.
- Gilbert, Charles H. 1913b The salmon of Swiftsure Bank and the Fraser River sockeye run of 1913. Rept. Comm'r Fish., 1912, Prov. Brit. Col., 14-24.
coho; sockeye; humpback; spring; Swiftsure Bank, B.C.; racial analysis - anatomical comments; age at time of return; time young spend in freshwater; size at time of seaward migration; food & feeding habits, ocean; size at time of return.
- Gilbert, Charles H. 1914a Age at maturity of the Pacific coast salmon of the genus Oncorhynchus. Bull. U.S. Bur. Fish., 32: 1-22, 29 figs., 17 pls.
O. nerka, sockeye, red, blueback; O. tschawyt-scha (sic), king, chinook, spring, tyee, Sacramento; O. kisutch, silver, coho; O. keta, dog; O. gorbuscha, humpback; post spawning behavior (death after spawning except for precocious stream fish of 1st year whose fate is still unknown; time young spend in freshwater; time of seaward migration; food & feeding habits; grilse, sacksalmon, sachems; figured (scales of all species); age at time of return (age groups); length at time of return; sex ratios; intro. & acclim: Tomales Bay, Calif.

- Gilbert, C.H. 1914b
- Contributions to the life history of the sockeye salmon (No. 1). Rept. Comm. Fish. 1913., Prov. Brit. Col., 53-78, 13 figs., 14 tables, 6 plates.
- O. keta, chum, dog; sockeye; Fraser R., Nass R., Rivers Inlet, B.C.; type of stream chosen; dwarf redfish; Olympic Mts., Wash.; age at time of return; growth rates from scale studies; movements in ocean; food & feeding habits; length at time of return; grilse; racial analysis from scale studies; home stream theory; sex ratios, p. 73-74; time young spend in freshwater.
- Gilbert, C.H. 1915
- Contributions to the life history of the sockeye salmon (No. 2). Rept. Comm. Fish., 1914, Prov. Brit. Col., 45-75, 8 figs., 41 tables.
- sockeye; Fraser R., Rivers Inlet, Smith Inlet, Skeena R., Nass R., B.C.; racial analysis; sex ratios; grilse, pp. 50-51; time young spend in freshwater; size at time of seaward migration; home stream theory; size at time of return.
- Gilbert, C.H. 1916
- Contributions to the life history of the sockeye salmon (No. 3). Rept. Comm. Fish., 1915, Prov. Brit. Col., 26-64, 58 figs., 3 plates with 9 figs.
- sockeye; Brit. Col.; home stream theory; racial analysis - detailed; age at time of return; spawning period; growth rates from scale studies; size at time of seaward migration.
- Gilbert, C.H. 1918
- Contributions to the life history of the sockeye salmon (No. 4). Rept. Comm. Fish., 1917, Prov. Brit. Col., 33-80, 15 figs., 51 tables.
- Gilbert, Charles H. (cont.) 1918
- sockeye; Fraser R., Rivers Inlet, Skeena R., Nass R., B.C.; grilse, pp. 35-36, 53; racial analysis - detailed; age at time of return; growth rates from scales; home stream theory; size at time of return; parasites.
- Gilbert, Charles H. 1919
- Contributions to the life history of the sockeye salmon (No. 5). Rept. Comm. Fish., 1918, Prov. Brit. Col., 26-52, 24 figs., 30 tables.
- sockeye; Fraser R., Rivers Inlet, Skeena R., Nass R., B.C.; racial analysis - detailed; age at time of return (age groups); home stream theory; time young spend in freshwater; size at time of return.
- Gilbert, Charles H. 1920
- Contributions to the life history of the sockeye salmon. (No. 6). Rept. Comm. Fish. 1919, Prov. Brit. Col., 35-68, 6 figs., 52 tables.
- sockeye; Fraser R., Rivers Inlet, Skeena R., Nass R., B.C.; racial analysis - detailed from scale studies; size at time of return; sex ratios; length at time of seaward migration; time young spend in freshwater.
- Gilbert, Charles H. 1921
- Will there be a large sockeye run to the Fraser River in 1921? Rept. Comm. Fish., 1920, Prov. Brit. Col., 27-28.
- sockeye; Fraser R., B.C.; age groups - grilse.

Contributions to the life history of the sockeye salmon (No. 7). An analysis of the runs of sockeye to the principal rivers of British Columbia in 1920 and 1921. Rept. Comm'r Fish., 1921, Prov. Brit. Col., 15-64, 64 tables.

sockeye; Fraser R., Rivers Inlet, Skeena R., Nass R., B.C.; age at time of return (age groups); size of species at time of return; sex ratios; time species migrates upstream; time young spend in freshwater; racial analysis - detailed data.

Gilbert, Charles H.

1923

Contributions to the life history of the sockeye salmon (No. 8). Rept. Comm'r Fish., 1922, Prov. Brit. Col., 16-49, 54 tables.

sockeye; Fraser R., Rivers Inlet, Skeena R., Nass R., B.C.; age at time of return; sex ratios; time species migrates upstream; racial analysis - detailed data; time young spend in freshwater.

Gilbert, Charles H.

1924a

Contributions to the life history of the sockeye salmon (No. 9), Rept. Comm'r Fish., 1923, Prov. Brit. Col., 16-40, 1 plate, 35 tables.

sockeye; Fraser R., Rivers Inlet, B.C.; time species migrates upstream; age at time of return (age groups); size at time of return; sex ratios; time young spend in freshwater; racial analysis - detailed data and discussion.

Gilbert, Charles H.

1924b

Experiment in tagging adult red salmon, Alaska Peninsula fisheries reservation, summer of 1922. Bull. U.S. Bur. Fish. 39: 39-50, 11 tables, 1 plate.

red, sockeye; Alaska Peninsula, Shumagin Islands, Alaska; tagging & recapture data; probable ocean movements.

The salmon of the Yukon River. Bull. U.S. Bur. Fish, 38: 317-332, 9 tables, 13 plates.

O. tschawytscha (sic), king; O. keta, chum, dog; O. nerka, sockeye; O. kisutch, coho; O. gorbuscha, humpback; relative abundance of the species; Yukon R., Alaska; time young spend in freshwater; distance travelled upstream; age at time of return; sex ratios; time species returns from ocean to stream mouth; racial analysis; size at time of return; growth rates from scales; sexual dimorphism.

Gilbert, Charles H.

1925

Contributions to the life history of the sockeye salmon (No. 10). Rept. Comm'r Fish., 1924, Prov. Brit. Col., 18-39, 31 tables.

sockeye; Fraser R., Rivers Inlet, Skeena R., Nass R., B.C.; size at time of return; age at time of return (age groups); time young spend in freshwater; sex ratios; racial analysis - detailed.

Gilbert, Charles H.,
and Evermann, Barton W.

1895

A report upon investigations in the Columbia River Basin, with descriptions of four new species of fishes. Bull. U.S. Fish Comm. 14: 169-207, 8 tables, plates 16-25.

O. gorbuscha, humpback; O. keta, dog; O. tschawytscha (sic), chinook; Columbia R.; time species migrates upstream; distribution; size at time of seaward migration; counts & measurements; distance travelled upstream.

Gilbert, Charles H.,
and O'Malley, Henry

1921

Investigation of the salmon fisheries
of the Yukon River. Rept. Comm'r
Fish (1921), U.S. Bur. Fish., Doc.
No. 909, 126-154.

red, sockeye; humpback; silver, coho;
chinook, king; chum, dog; Alaska,
Yukon R.; spawning period; time species
migrates upstream; color; sexual di-
morphism; distance travelled upstream.

Gilbert, Charles H.,
and Rich, Willis H.

1927

Second experiment in tagging salmon
in the Alaska Peninsula fisheries
reservation, summer of 1927. Bull.
U.S. Bur. Fish., 42: 27-75, 9 figs.,
43 tables.

red; dog; king; silver; humpback;
Shumagin Islands, False Pass, Alaska
Peninsula; tagging & recapture data;
migration routes; home stream theory;
distribution; racial analysis -
comments (p. 73).

Gilbert, Charles H.,
and Rich, Willis H.

1929

Investigations concerning the red
salmon runs to the Karluk River,
Alaska. Bull. U.S. Fish. Bur.,
43(Part II): 1-69, 64 text figs.,
26 tables.

O. nerka, red, sockeye; O. gorbuscha,
pink; catch records; spawning period,
Karluk Lake; nature of spawning sites;
egg counts; time young spend in fresh-
water; time of seaward migration;
size at time of return; length at time
of seaward migration; age at time of
return; grilse; sex ratios; racial
analysis - comment.

Gill, T.

1862

Note on some genera of fishes of
western North America. Proc. Acad.
Nat. Sci. Phila., 14: 329-332.

Eysifario kennerleyi; syn. Salmo
kennerlyi sudley.

Girard, Charles

1857

Notice upon the species of the genus
Salmo, of authors, observed chiefly
in Oregon and California. Proc. Phila.
Acc. Nat. Sci., 7: 217-218.

Salmo; Salmo scouleri; Salmo quinnat;
synonymy; description; distribution;
comparison.

Girard, Charles

1859

Fishes, IM: Reports of explorations
and surveys, to ascertain the most
practicable and economical route
for a railroad from the Mississippi
River to the Pacific Ocean. 10:
1-400, 75 plates, senate ex. Doc.
No. 78.

Salmo scouleri, ekewan natives of
Col. R.; Salmo quinnat; Fario tsup-
pitch; Fario argyreaus; synonymy;
counts & measurements; description;
figured.

Godfrey, H., Hourston,

1954

A.R., Stokes, J., and Withler, F.C.

Effects of a rock slide on Babine
red salmon. Bull. Fish. Res. Bd.
Can., No. 101, 1-100, 40 figs.,
32 tables.

O. nerka, sockeye; O. gorbuscha, pink;
O. kisutch, coho; O. tschawytscha
(sic), spring; O. keta, chum; time
species migrate upstream; counts of
migrant adults; age at time of return;
tagging & recapture data.

Goode, G. Brown

1880

Exhibit of the fisheries and fish
culture of the United States of
America, made at Berlin in 1880. Bull.
U.S. Natl. Mus., No. 18, 1-263.

Salmo kennerlyi, red; Salmo quinnat,
quinnat, Sacramento; distribution.

- Gordon, S.C. 1915
Tributaries of the Naas River. Rept. Comm'r Fish. 1914, Prov. Brit. Col., 43-44.
coho; sockeye; spring; humpback; dog; distribution.
- Green, Loren W. 1887
Salmon in the McCloud River during the season of 1886. Bull. U.S. Fish Comm., 6: 334-336.
salmon, the only name used; Calif.;-time species returns from ocean to stream mouth; distance travelled upstream; post spawning behavior; mention made of revival of spawned salmon by being kept in saltwater.
- Greene, Charles Wilson 1905
Physiological studies of the chinook salmon. Bull. U.S. Bur. Fish., 24: 429-455.
O. tschawytscha (sic), chinook; physiology: blood pressure, heart beat, respiratory rate; Bird Hatchery, McCloud R.; depression of freezing points of salmon blood & serum sea, brackish water & spawning ground salmon.
- Greene, C.W. 1910
The speed of migrating salmon in the Columbia River. Proc. Indiana Acad. Sci., 1909 (1910), 25: 126-126.
Not abstracted.
- Greene, Charles W. 1911a
The absorption of fats by the alimentary tract, with special reference to the pyloric caeca in the king salmon, *Oncorhynchus tschawytscha*. Trans. Amer. Fish. Soc., 41: 261-263.
O. tschawytscha (sic), king; anatomy, histology, biochemistry (fats) in alimentary tract.
- Greene, Charles W. 1911b
The migration of salmon in the Columbia River. Bull. U.S. Bur. Fish., 29: 129-148, 4 figs., 6 tables, 2 plates.
O. tschawytscha, chinook; O. nerka; O. kisutch, silver; Columbia R., Sacramento R.; time young migrate downstream; time species migrates upstream; distance travelled upstream; type of stream chosen; food & feeding habits (freshwater); post spawning behavior (death after spawning); physiology (osmotic changes from salt to freshwater); tagging & recapture data; distribution; length at time of return; estimated weight at time of return.
- Greene, Chas. W. 1912
A new type of fat storing muscle in the salmon, O. tschawytscha. Amer. J. Anat., 13: 175-178, 1 plate.
O. tschawytscha, king; anatomy, histology, biochemistry (fat).
- Greene, Charles W. 1913
An undescribed longitudinal differentiation of the great lateral muscle of the king salmon. Anat. Rec., 7: 99-101.
king; anatomy & histology.
- Greene, Charles W. 1914
Anatomy and histology of the alimentary tract of the king salmon. Bull. U.S. Bur. Fish., 32: 74-100, 11 figs., plates 25-28.
king; anatomy & histology (alimentary tract).

- Greene, Charles W. 1915a The fat-absorbing function of the alimentary tract of the king salmon. Bull. U.S. Bur. Fish., 33: 149-175, plates 12-15.
- king; Monterey Bay, McCloud R.; anatomy & histology (alimentary tract).
- Greene, C.W. 1915b On some quantitative physiological changes in the Pacific Salmon during the run to the spawning grounds. Trans. Amer. Fish. Soc., 45: 5-12.
- king; California; size at time of return; physiology.
- Greene, Charles W. 1915c The storage of fat in the muscular tissue of the king salmon and its resorption during the fast of the spawning migration. Bull. U.S. Bur. Fish., 33: 69-138, 1 table, plates 3-11.
- O. tschawytscha, king; Columbia River Basin; biochemistry (fat); distribution; food & feeding habits (ocean).
- Greene, Charles W. 1919 Biochemical changes in the muscle tissue of king salmon during the fast of spawning migration. J. Biol. Chem., 39: 435-456. October.
- Not abstracted.
- Greene, Charles W. 1921a Chemical development of the ovaries of the king salmon during spawning migration. J. Biol. Chem., 48: 59-71.
- Not abstracted.
- Greene, Charles W. 1921b Carbohydrate content of the king salmon tissues during the spawning migration. J. Biol. Chem., 48: 429-436.
- Not abstracted.
- Greene, Charles W., and Greene, Carl Hartley 1915 The skeletal musculature of the king salmon. Bull. U.S. Bur. Fish., 33: 21-59, text figs. 14, 2 plates.
- O. tschawytscha (sic), king; anatomy (myology).
- Grigo, L.D. 1953 Morphological differences between summer and autumn salmon Oncorhynchus keta (Walbaum), O. keta (Walbaum) infraspecies autumnalis Berg. Dok. Akad. Nauk S.S.S.R., 92(6):1225.
- Not abstracted.
- Guberlet, John E. 1926 Ecto-parasitic infusoria attacking fish of the Northwest. Fisheries, Wash. Univ. Publications, 2: 1-16.
- O. kisutch, silver; chinook; ecto-parasites.
- Guberlet, John E. 1936 A brief resume of trematode studies in Washington. The Biolog. (Dept. Biol., Univ. Portland, Ore.), 3(2): 1-2, 9-10. May.
- Not abstracted.

- Haderlie, E.C. 1953
Parasites of freshwater fishes of northern California. Univ. Calif. Pub. Zool., 57: 303-440, plates 31-63.
O. kisutch; O. nerka kennerleyi; O. tshawytscha; Nern, Calif.; parasites: internal: trematodes, nematodes.
- Hagerman, Fred B. 1951
An easy method of separating king and silver salmon. Cal. Fish & Game, 37: 53-54, fig. 35.
O. tshawytscha, king; O. kisutch, silver; description; counts & measurements; comparisons.
- Hallock, Richard J., Warner, George H., and Fry, Donald H., Jr. 1952
California's part in a three-state salmon fingerling marking program. Cal. Fish & Game, 38: 301-332, figs. 1-12, 4 tables.
O. tshawytscha (sic) king; O. kisutch, silver; comparisons; range; distribution; Upper Sacramento R., N. Calif.; type of stream chosen; nature of spawning site; behavior of fry & fingerlings; time of seaward migration; time young spend in freshwater; size at time of seaward migration; movements in ocean.
- Hamilton, J.A.R., and Andrew, F.J. 1954
An investigation of the effect of Baker Dam on downstream migrant salmon. Bull. 6, Internat'l Pac. Salmon Fish. Comm., 73 pp., 28 figs., 31 tables.
O. nerka, sockeye; O. kisutch, coho; Baker R., Wash; time of seaward migration.
- Hanavan, Mitchell G., and Skud, Bernard Einar 1954
Intertidal spawning of pink salmon. Fish Bull. U.S. Fish & Wildlife Service, 56: 167-185, 3 figs., 3 tables.
O. gorbuscha, pink; Little Port Walter, Baranof Island, Alaska; time species returns from ocean to stream mouth; spawning period; time of emergence; type of stream chosen; nature of spawning site; distance travelled upstream.
- Handa, Yoshio 1934
Salmon propagation in Hokkaido. Proc. Fifth Sci. Cong. (1933), 5: 3601-3605, 4 tables.
O. keta, sake; O. masu, masu; O. gorbuscha, karafutomasu; O. nerka, benimasu, himemasu (landlocked); O. kisutch, gimmasu; Japan; distribution; time species migrates upstream; time young spend in freshwater.
- Hanson, Harry A. 1940
Preliminary report on an investigation to determine possible methods of salvaging the Sacramento River salmon and steelhead trout at Shasta Dam. Contrib. Fish Comm. State of Ore. Contrib. 2, 199-204, 1 map, 1 chart.
Sacramento R., Shasta Dam; counts of fish & eggs; nature of spawning site.
- Hanson, Harry A., Smith, Osgood R., and Needham, Paul R. 1940
An investigation of fish-salvage problems in relation to Shasta Dam. Special Scientific Report No. 10, U.S. Fish & Wildlife Service, 1-200, 22 figs., 45 tables, 2 maps, appendices. (Also in Stanford Ichthyological Bull., 1(6): 199-204.

- Hanson, Harry A., et al (cont.) 1940
- O. tschawytscha (sic), chinook; Sacramento R. system; movements in ocean; racial analysis, comments; catch records, ocean & stream; counts of migrant adults; time species migrates upstream; size at time of return; sex ratios; size of redd; egg counts; spawning period; time of seaward migration; length of seaward migrants; distribution (in Sacramento drainage).
- Hasler, Arthur D. 1938
- Fish biology and limnology of Crater Lake, Oregon. J. Wildlife Management, 2(3): 94-103, 3 figs., 1 table.
- O. kisutch, silverside; Crater Lake, Oreg.; food & feeding habits: lake; growth rates, in freshwater, by scale studies; distribution.
- Hasler, Arthur D., and Farner, D.S. 1942
- Fisheries investigations in Crater Lake, Oregon, 1937-1940. J. Wildlife Management, 6: 319-327, 3 tables, 1 fig.
- O. kisutch, silver; Crater Lake, Ore.; food & feeding habits: lake; distribution; growth rates, in freshwater, by scale studies; nature of spawning site.
- Hasler, Arthur D., and Wisby, Warren J. 1951
- Discrimination of stream odors by fishes and its relation to parent stream behavior. The Amer. Nat., 85: (No. 823): 223-238.
- O. nerka, sockeye; distribution; age at time of return; home stream theory.
- Hatton, S. Ross 1940
- Progress report on the Central Valley fisheries investigations in 1939. Cal. Fish & Game, 26: 334-372, figs. 127-132, 6 tables.
- O. tschawytscha (sic); distribution; Sacramento R., San Joaquin R., Feather R., Calif.; type of stream chosen; nature of spawning site; behavior of fry & fingerlings; time of seaward migration; length at time of seaward migration; growth rates, freshwater, determined by direct measurement.
- Hatton, S. Ross, and Clark, G.H. 1942
- A second progress report on the Central Valley fisheries investigations; Cal. Fish & Game, 28: 116-125, fig. 37, 4 tables.
- salmon; distribution; Sacramento R., San Joaquin R., Calif.; type of stream chosen; behavior of fry & fingerlings; time of seaward migration; growth rates, freshwater from direct measurement; size at time of seaward migration; time species migrates upstream.
- Hefford, A.E. 1928
- Quinnat salmon. New Zealand, Marine Dept. Rept. on Fisheries for 1928, 8-10, 12-13.
- Quinnat; Hakataramea R., N. Zealand; intro. & acclim.: N. Zealand, Tasmania; distribution.
- Hefford, A.E. 1929
- Quinnat salmon. New Zealand, Marine Dept. Rept. Fisheries for 1929, 9-12, 21.
- Quinnat (sea-going & lake dwelling); N. Zealand; catch records; intro. & acclim.: N. Zealand, Tasmania; distribution; time species returns from ocean to stream mouth; age at time of return; weight at time of return.

Hefford, A.E. 1930

Quinnat salmon. New Zealand, Marine Dept. Rept. Fisheries for 1930, 11-13, 21.

Quinnat; N. Zealand; time species migrates upstream; intro. & acclim.: N. Zealand, Tasmania.

Hefford, A.E. 1931

Quinnat salmon. New Zealand, Marine Dept. Rept. Fisheries for 1931, 10-13, 17-18.

Quinnat; N. Zealand; time species migrates upstream; tagging & recapture data on migration routes; intro. & acclim.: N. Zealand; distribution.

Hefford, A.E. 1932

Quinnat salmon. New Zealand, Marine Dept., Rept. Fisheries for 1932, 8-10.

Quinnat; N. Zealand; time species migrates upstream; distribution; intro. & acclim.: N. Zealand; weight at time of return.

Hefford, A.E. 1934a

Quinnat salmon. New Zealand, Marine Dept. Rept. Fisheries for 1933, 14-16.

Quinnat; N. Zealand; intro. & acclim.: N. Zealand; time species migrates upstream; catch records; weight at time of return.

Hefford, A.E. 1934b

Quinnat salmon. New Zealand, Marine Dept. Rept. Fisheries for 1934, 15-17.

Quinnat; N. Zealand; growth rates; tagging & recapture data; time species migrates upstream; weight at time of return.

Hefford, A.E. 1935

Quinnat salmon. New Zealand, Marine Dept. Rept. Fisheries for 1935, 12-14.

Quinnat; N. Zealand; time species migrates upstream; intro. & acclim.: N. Zealand, Tasmania; distribution; weight at time of return.

Hefford, A.E. 1936

Quinnat salmon. New Zealand, Marine Dept., Rept. Fisheries for 1936, 15-17.

Quinnat; N. Zealand; catch records; time species migrates upstream; marking & recapture data; growth rates; weight at time of return.

Hefford, A.E. 1938

Quinnat salmon. New Zealand, Marine Dept. Rept. Fisheries for 1937, 15-18.

Quinnat; New Zealand; time species migrates upstream; intro. & acclim.: N. Zealand; weight at time of return.

Hefford, A.E. 1940

Quinnat salmon. New Zealand, Marine Dept. Rept. Fisheries for 1939, 15-17.

Quinnat; N. Zealand; time species migrates upstream; intro. & acclim.: N. Zealand; weight at time of return.

Hefford, A.E. 1941

Quinnat salmon. New Zealand, Marine Dept. Rept. Fisheries for 1941, 12-14.

Quinnat; N. Zealand; time species migrates upstream; catch records; intro. & acclim.: N. Zealand; weight at time of return.

- Hefford, A.E. 1946 Hickman, C.P. (cont.) 1914
 Quinnsat salmon. New Zealand, Marine sockeye; Nass R., B.C.; spawning period; Dept. Rept. Fisheries for 1945, 21. distribution.
- Quinnat; N. Zealand; catch records; intro. & acclim.: N. Zealand; weight at time of return. Hickman, C.P. 1915
 The spawning grounds of the Nass River. Rept. Comm. Fish., 1914, Prov. Brit. Col., 41-42.
- Heg, Robert, and 1951 Van Hyning, Jack
 Food of the chinook and silver salmon taken off the Oregon coast. Fish Comm. of Oregon, Res. Briefs, 3(2): 32-40. August. 5 figs., 5 tables. Hickman, C.P. 1918
 The spawning beds of the Nass River. Rept. Comm. Fish., 1917, Prov. Brit. Col., 30-32.
- Not abstracted. sockeye; spring; Nass R., B.C.; spawning period; distribution.
- Henry, Kenneth A. 1953
 Analysis of factors affecting the production of chum salmon (Oncorhynchus keta) in Tillamook Bay. Fish Commis. of Oregon. Contrib. No. 18 (1953), 1-37, 6 figs., 9 tables. Hickman, C.P. 1921
 The spawning beds of the Nass River. Rept. Comm. Fish., 1920, Prov. Brit. Col. 24-26.
- O. tshawytscha (sic), chinook; red; pink; O. kisutch, silver; O. keta, chum; Tillamook Bay, Ore.; range; catch records; time species returns from ocean to stream mouth; age at time of return; time young spend in freshwater; sockeye; spring; coho; Nass R., B.C.; spawning period; distribution.
- Henry, Kenneth A. 1954 Hickman, C.P. 1922
 The spawning beds of the Nass River. Rept. Comm. Fish., 1921, Prov. Brit. Col., 71-72.
- Age and growth study of Tillamook Bay chum salmon (Oncorhynchus keta). Fish Commis. State of Ore. Contrib. No. 19, 1-26, 7 figs., 12 tables. sockeye; spring; coho; Nass R., B.C.; spawning period; distribution.
- O. keta, chum; Tillamook Bay, Ore; sex ratios; growth rates from scale studies; age at time of return; size at time of return. Hickman, C.P. 1923
 The spawning beds of the Meziadin Lake and Bowser Lake watersheds of the Nass River. Rept. Comm. Fish., 1922, Prov. Brit. Col., 56-58.
- Hickman, C.P. 1914
 The spawning beds of the Nass. Rept. Comm. Fish., 1913, Province Brit. Col., 49-50; sockeye; Nass R., B.C.; spawning period; distribution.

Hickman, C.P.	1924	Hickman, C.P.	1929
The spawning beds of the Meziadin Lake and Bowser Lake watersheds of the Nass River. Rept. Comm. Fish., 1923, Prov. Brit. Col., 46-48.		The spawning beds of the Nass River. Rept. Comm. Fish., 1928, Prov. Brit. Col., 53-54.	
sockeye; spring; Nass R., B.C.; spawning period; distribution.		sockeye; coho; spring; spawning period; distribution; Nass R., B.C.	
Hickman, C.P.	1925	Hickman, C.P.	1930
The spawning beds of the Nass River. Rept. Comm. Fish., 1924, Prov. Brit. Col., 50-51.		The spawning beds of the Nass River. Rept. Comm. Fish., 1929, Prov. Brit. Col., 57-58.	
sockeye; spring; coho; Nass R., B.C.; spawning period; distribution.		sockeye; coho; spring; Nass R., B.C.; spawning period; distribution.	
Hickman, C.P.	1926	Hickman, C.P.	1931
The spawning beds of the Nass River. Rept. Comm. Fish., 1925, Prov. Brit. Col., 52-53.		The spawning beds of the Nass River. Rept. Comm. Fish., 1930, Prov. Brit. Col., 54-55.	
sockeye; spring; coho; Nass R., B.C.; spawning period; distribution.		sockeye; coho; spring; Nass R., B.C.; spawning period; distribution.	
Hickman, C.P.	1927	Hickman, C.P.	1932
The spawning beds of the Nass River. Rept. Comm. Fish., 1926, Prov. Brit. Col., 70-71.		The spawning beds of the Nass River. Rept. Comm. Fish., 1931, Prov. Brit. Col., 47-48.	
sockeye; spring; coho; Nass R., B.C.; spawning period; distribution.		sockeye; spring; coho; Nass R., B.C.; nature of spawning site; spawning period; distribution.	
Hickman, C.P.	1928	Hickman, C.P., and Collison, J. Maxwell	1920
The spawning beds of the Meziadin Lake district of the Nass River. Rept. Comm. Fish., 1927, Prov. Brit. Col., 48-49.		The spawning beds of the Nass River. Rept. Comm. Fish., 1919, Prov. Brit. Col. 32-24.	
sockeye; coho; spring; spawning period; Meziadin Lake, B.C.; distribution.		sockeye; spring; coho; dog; hump-back; Nass R., B.C.; spawning period; distribution.	

- | | | | |
|--|------|---|-------|
| Higgins, Elmer | 1928 | Higgins, Elmer | 1940 |
| <p>Progress in biological inquiries, 1926. Rept. Comm'er Fish. (1927), U.S. Bur. Fish., Doc. No. 1029, 517-559.</p> <p>sockeye, blueback; chinook; Columbia R.; marking & recapture data; home stream theory (p. 533).</p> | | <p>Progress in biological inquiries, Administrative Rep. No. 39, Appendix I, Rept. U.S. Comm'er Fish. (1940), 1-96.</p> <p>red; Alaska; time species migrates upstream; egg counts; marking & recapture data; migration routes, saltwater.</p> | |
| Higgins, Elmer | 1929 | Hikita, Hirochika (former name: Toyohiko) | 1955 |
| <p>Progress in biological inquiries 1927. Rept. Comm'er Fish. (1928), U.S. Bur. Fish. Doc. No. 1044, 199-247.</p> <p>red; chinook; silver; pink; Alaska & Pacific coast; tagging & recapture data; migration routes.</p> | | <p>On an aberrant form of chum salmon taken from the Northern Pacific ocean and some examples of salmonoid fishes in Hokkaido. Sci. Rept. Hokkaido Fish Hatchery. Vol. 10(1-2): 63-71; 6 figs.; 1 plate. Japanese with English abstract and captions.</p> <p><u>O. keta</u>, chum; <u>O. masou</u>; species figured; counts & measurements; movements in ocean.</p> | |
| Higgins, Elmer | 1930 | Hikita, Toyohiko | 1951 |
| <p>Progress in biological inquiries 1928. Rept. Comm'er Fish. (1929), U.S. Bur. Fish. Doc. No. 1068, 627-739.</p> <p><u>O. nerka kennerlyi</u>, little redfish, young; marking & recapture data (experiment inducing sea run habit).</p> | | <p>Fishes of Volcano Bay in Hokkaido. Jap. J. Ichthyology, 1(5): 306-313.</p> <p><u>O. keta</u>, sake; <u>O. masou</u>, masu; <u>O. gorbuscha</u>, karafuto-masu; distribution; Volcano Bay, southwestern coast in Hokkaido.</p> | |
| Higgins, Elmer | 1931 | Hikita, Toyohiko | 1953 |
| <p>Progress in biological inquiries 1920. Rept. U.S. Comm'er Fish. (1931), Appendix III, 555-626.</p> <p>red; time of seaward migration; movements in ocean (fingerlings).</p> | | <p>A note on the fry of salmonoid fishes rearing in the artificial hatchery of Hokkaido, with special reference to the discrimination of the salmon fry. Sci. Rept. Hokkaido Fish Hatchery, 8(1-2): 11-20, 8 figs. Japanese with English abstract.</p> <p><u>O. keta</u>; <u>O. masou</u>; <u>O. gorbuscha</u>; <u>O. tshawytscha</u> (sic); <u>O. nerka</u>; <u>O. kisutch</u>; Japan; figured; description.</p> | |
| Higgins, Elmer | 1932 | Hikita, Toyohiko | 1954a |
| <p>Progress in biological inquiries 1931. Rept. U.S. Comm'er Fish. (1932), Appendix III, 441-529.</p> <p>red; <u>O. gorbuscha</u>, pink; Alaska & Pacific coast; racial analysis, comments, p. 476; time young spend in freshwater; age at time of return.</p> | | <p>On the common names of the salmonoid fishes and their related forms found</p> | |

- Hikita, Toyohiko (cont.) 1954a Hoar, William S. 1951c
- in northern Japan and its adjacent waters. Sci. Repts. Hokkaido Fish Hatchery, 9(1-2): 137-145. Japanese with English abstract.
- Not abstracted.
- Hikita, Toyohiko 1954b Hoar, William S. 1953
- An example of a silver-salmon-like salmon migrating upriver in Hokkaido. Sci. Repts. Hokkaido Fish Hatchery, 9(1-2): 195-198. 2 figs., 1 plate. In Japanese.
- Not abstracted.
- Hikita, Toyohiko 1955 Hoar, William S. 1954
- An aberrant form of the dog-salmon with abnormal scales. J. Journal Ichthyology, 4(4-6): 133-135, 4 figs.
- O. keta, dog; Hokkaido, Japan; species & scales figured; counts & measurements; color.
- Hoar, William S. 1951a Hoar, William S. 1955
- The behavior of chum, pink, coho salmon in relation to their seaward migration. J. Fish. Res. Bd. Can., 8: 241-263, 5 figs., 5 tables.
- O. keta, chum; O. gorbuscha, pink; O. kisutch, coho; time young stay in freshwater; behavior of fry & fingerlings; comparisons; time of seaward migration; physiology.
- Hoar, William S. 1951b Hoar, William S. 1950
- The chum and pink salmon fisheries of British Columbia 1917-1947. Bull. Fish. Res. Bd. Can. No. 90, 1-46, 21 figs; 9 tables.
- O. keta, chum; O. gorbuscha, pink; O. nerka, sockeye; O. kisutch, coho; O. tschawytscha (sic), spring; age at time of return.
- Hoar, William S. 1951c
- Hormones in fish, in some aspects of the physiology of fish. Univ. of Toronto Studies, No. 59, 1-51.
- O. gorbuscha; O. keta, chum; O. kisutch, coho; biochemistry (physiology).
- Hoar, William S. 1953
- Control and timing of fish migration. Biol. Rev. of the Cambridge Philos. Soc., 28: 437-452.
- O. kisutch, coho; O. keta, chum; O. gorbuscha, pink; O. nerka, sockeye; behavior of fry; downstream migration; biochemistry (physiology); movements in ocean; timing of migration, physiological.
- Hoar, William S. 1954
- The behavior of juvenile Pacific salmon, with particular reference to the sockeye (Oncorhynchus nerka). J. Fish. Res. Bd. Can., 11: 69-97, 8 tables, 8 figs.
- O. nerka, sockeye; O. keta, chum; O. kisutch, coho; O. gorbuscha, pink; behavior of fry & fingerlings; counts & measurements.
- Hoar, William S. 1955
- Phototactic and pigmentary responses of sockeye salmon smolts following injury to the pineal organ. J. Fish. Res. Bd. Can., 12: 178-185, 2 tables; 2 plates.
- O. nerka, sockeye; Lakelse, B.C.; behavior of fry & fingerlings (phototaxis).
- Hoar, William S., and Bell, G. Mary 1950
- The thyroid gland in relation to the seaward migration of Pacific salmon. Canad. J. Res., Sect. D, Zool. Sci., 28(3): 126-136.
- Not abstracted.

- Hobbs, Derisley F. 1937 Natural reproduction of quinnat salmon, brown and rainbow trout. New Zealand, Marine Dept., Fish. Bull. No. 6, 1-104, 8 figs., 23 tables, 11 plates.
- O. tschawytscha (sic), quinnat; O. nerka, sockeye; N. Zealand; type of stream chosen; time species migrates upstream; spawning period; counts & measurements; age at time of return; counts of migrant adults; nature of spawning site; spawning behavior; post-spawning behavior; growth rates (hatchery).
- Hodges, John I., and Gharrett, John T. 1949 Tillamook Bay spring chinook salmon. Fish Comm. Ore., Res. Briefs, 2(2): 11-16. 3 figs., 3 tables.
- Not abstracted.
- Holmes, Harlan B. 1928 Columbia River salmon - in progress in biological inquiries, 1926. Rept. Comm'er Fish. (1927)? U.S. Bur. Fish. Doc. No. 1029, 645-650.
- O. tschawytscha, chinook; O. nerka, sockeye; Columbia R.; marking & recapture data; home stream theory; racial analysis - comments; biochemistry; food & feeding habits: ocean.
- Holmes, Harlan B. 1934 Natural propagation of salmon in Alaska. Proc. Fifth Pac. Sci. Cong., 1933, 5: 3585-3592.
- red; Karluk & Chignik R., Alaska; age at time of return; time young spend in freshwater; time of seaward migration; racial analysis - comments, p. 3568; egg counts; size at time of seaward migration.
- Holmes, Harlan B. 1940 The passage of fish at Bonneville Dam. Contrib. Fish Comm. State of Ore., Contrib. 2, 182-186, 1 table. Also in Stanford Ichthyological Bull., 1(6): 182-192.
- chinook; blueback; silver; Bonneville Dam area; counts of migrant adults.
- Honma, Yoshiharu 1952 A list of the fishes collected in the province of Echigo, including Sado Island. Jap. J. Ichthyology, 2(3): 138-145.
- O. masou; O. keta; distribution.
- Honma, Yoshiharu, and Murakawa, Sinjuro 1955 Effects of thyroxine and thiourea on the development of chum salmon larvae (O. keta). Jap. J. Ichthyology, 4(1-3): 83-93, 3 figs., 6 tables. Japanese with English resume, tables and captions.
- O. keta, chum; Japan; figured; counts & measurements; description; growth rates; histology.
- Hoover, Earl E. 1936 Contributions to the life history of the chinook and landlocked salmon in New Hampshire. Copeia, No. 4, 193-198, 2 text-figs.
- O. tschawytscha (sic), chinook, king; New Hampshire; figured; counts & measurements; color; time species migrates upstream (landlocked); size at time of return; age at time of return; distance travelled upstream; spawning period; nature of spawning site; sexual dimorphism; spawning behavior; post spawning behavior; food & feeding habits (very brief).

On the new nyxosporidian parasite of the genus Myxosoma, M. salmonis n. sp., infecting the scales of the dog salmon. Fish. Abstracts of Japan, 36. Japanese with English title.

dog; Japan; parasites, external:
Myxosoma salmonis n. sp.

Houreston, W.R., Clay, C.H., 1955
Edgeworth, L., Larki, P.A.,
Vernon, E.H., and McMynn, R.G.

Planning anadromous fish protection for proposed dams. Trans. 20th N. Amer. Wildlife Conference, Wash., D.C., 440-454.

O. gorbuscha, pink; O. keta, chum;
O. kisutch, coho; O. tshawytscha
(sic), spring; Capilano R., Vancouver, B.C.; time of seaward migration; size at time of seaward migration.

Howard, Gerald V. 1948

Problems in enumeration of population of spawning sockeye salmon. Bull. 2, Internat'l Pac. Salmon Fish. Comm., 1-66, 1 fig., 25 tables.

sockeye; Cultus Lake, B.C.; post-spawning behavior (length of post-spawning life, p 36).

Hubbs, Carl L. 1946

Wandering of pink salmon and other salmonid fishes into Southern California. Cal. Fish & Game, 32(2): 81-86.

O. gorbuscha, humpback, pink; O. tshawytscha, king; O. keta, dog, chum; O. kisutch, silver; description; counts & measurements; range; distribution; spawning period; time of seaward migration; time young spend in freshwater; movements in ocean; growth rates, salt-water, from scale studies.

Colored illustration, Quinnet salmon. Cal. Fish & Game, 3(3): 96.

O. tshawytscha; figured.

Hunter, J.G.

1948

Natural propagation of salmon in the Central Coastal area of British Columbia. Prog. Rept. Pac. Coast Stas., Fish. Res. Bd. Can., No. 77, 105-106.

O. gorbuscha, pink; O. keta, chum; O. nerka, sockeye; O. kisutch, coho; British Columbia; counts of migrant adults; egg counts; time species migrates upstream.

Hunter, J.G.

1949a

Natural propagation of salmon in the Central Coastal area of British Columbia II. The 1948 run. Prog. Rept. Pac. Coast Stas., Fish. Res. Bd. Can., No. 79, 33-34.

O. gorbuscha, pink; O. keta, chum; O. nerka, sockeye; O. kisutch, coho; time species migrates upstream; counts of migrant adults; time of seaward migration.

Hunter, J.G.

1949b

Occurrence of hybrid salmon in the British Columbia commercial fishery. Prog. Rept. Pac. Coast Stas., Fish. Res. Bd. Can., No. 81, 91-92.

O. gorbuscha, pink; O. keta, chum; O. kisutch, coho; Port John, B.C.; description; egg counts; color; age of species at time of return; hybridization: pink x chum; size at time of return.

Hunter, J.G.

1951

Efficiency of reproduction of pink salmon (Oncorhynchus gorbuscha) in the North Central coastal area of British Columbia. Prog. Rept. Pac.

- Hunter, J.G. (cont.) 1951
Coast Stas., Fish. Res. Bd. Can.,
No. 88, 70-71, 3 tables.
- O. gorbusha, pink; O. keta, chum;
Hoodnose Cr., B.C.; counts of migrant
adults; marking & recapture data.
- Hume, R.D. 1893
Salmon of the Pacific Coast. Schmidt
Label & Lith. Co., S.F., 1-53.
blueback, saw quai, red; silver, silver-
sides; salmo gairdneri, chinook, king;
Pacific Coast; range; time species
migrates upstream; type of stream
chosen; spawning period; weight at
time of return; spawning behavior;
post-spawning behavior, survival; time
young spend in freshwater; home
stream theory.
- Huntsman, A.G. 1922
The fishes of the Bay of Fundy.
Contrib. Canad. Biol. (1921), 45-72.
O. gorbusha, humpback; distribution;
introduction & acclim.: Bay of Fundy.
- Huntsman, A.G. 1937a
Migration and homing of salmon.
Science, 85(2204): 313-314.
Not abstracted.
- Huntsman, A.G. 1937b
Races and homing of salmon.
Science, 85(2216): 582-583.
Not abstracted.
- Hutchinson, S.J. 1944
Port Walter evidence points to fewer
pinks in 1944 for Southeast Alaska
- Hutchinson, S.J. (cont.) 1944
generally. Pac. Fisherman, 42(3):
37-39.
pink; Southeast Alaska; time species
returns from ocean to stream mouth; time
species migrates upstream; counts of
migrant adults; behavior at stream
mouth
- Hutchinson, S.J., and 1942
Shuman, R.F.
Reproduction of pink salmon at Little
Port Walter, 1941-1942. Pacific
Fisherman, 40(14): 29, 31, 2 figs.
pink; Little Port Walter, Alaska;
type of stream chosen; counts of
migrant adults.
- I--
- Igarashi, Hisanao, and 1953
Zama, Kouichi
Biochemical studies of the salmon,
Oncorhynchus keta. I. The changes in
the chemical components of the body
tissues during the spawning migration.
Bull. Jap. Soc. Sci. Fish., 19(11):
615-622, 4 tables. Japanese with
English summary and headings.
Not abstracted.
- International North Pacific 1955
Fisheries Commission.
On the salmon in water adjacent to
Japan, a biological review. Bull.
Internat'l N. Pac. Fish. Comm., No. 1,
57-92, 19 figs., 14 tables. Translated
from the Japanese by Masao Ishida.
Participating in the compilation were:
Iatsuro Kubo, Yoshiaki Hirano, Seizo
Sano, Kisaburo Taguchi, Hiroshi Kasahara.

O. keta; O. gorbuscha; O. nerka; O. tschawytscha (sic); O. kisutch; O. masou; Asiatic waters; most abundant species; time species migrate upstream; distance travelled upstream; time eggs hatch; time of seaward migration; growth & time in coastal waters; age at time of return; landlocked & resident O. masou; distribution in North Pacific & Bering Sea of catches delivered to mother ships; tagging & recapture data; oceanic migration; trans-pacific migration; temperature & vertical & horizontal distribution in ocean; food & feeding habits, ocean; home stream theory; racial analysis; trap catch records for Soviet area, Kurile Islands, Kamchatka, Sakhalion.

pink; sockeye; silver; Puget Sound; tagging & recapture data, migration routes, segregation of populations; racial analysis.

Johnson, D.R., Chapman, 1948
W.M., and Schoning, R.W

The effects on salmon populations of the partial elimination of fired fishing gear on the Columbia River in 1935. Contrib. Fish Comm. Ore., Contrib. No. 11, 1-32, 18 tables, 8 figs.

O. tschawytscha, chinook; O. kisutch, silver; O. nerka, blueback; O. keta, chum; Columbia R.; distribution; time of seaward migration; catch records.

--J--

Jampolsky, A., and 1954
Hoar, W.S.

Growth hormone from salmon pituitary glands. J. Fish. Res. Bd. Can., 11(1): 57-62, 3 figs.

O. tschawytscha (sic), spring; Brit. Col.; biochemistry.

Johnson, Harlan E., and 1952
Bruce, Richard F.

Observations on columnaris in salmon and trout. Progressive Fish-Culturist, 14(8): 104-109, 1 fig., 1 table.

O. tschawytscha, chinook; O. kisutch, silver; blueback; parasites, bacterium.

Jarvis, Norman D., Clough, 1926
William R., and Clark, E.D.

Iodine content of the Pacific Coast salmon Univ. Wash. Publication in Fisheries, 1: 109-140.

chinook; pink; chum; sockeye; coho; biochemistry (iodine).

Jensen, Hans M. 1953

Migrations of silver salmon on Puget Sound. Wash. Dept. Fisheries, Fish. Res. Papers, 1(1) part 2: 13-21, 5 figs, 2 tables.

Johnson, Robert S. 1914

The distribution of fish and fish eggs during the fiscal year 1913. Rept. Comm'r Fish for 1913, U.S. Bur. Fish. Doc. No. 794, 1-142.

O. tschawytscha (sic), chinook, king, spring; O. kisutch, silver, coho; O. nerka, blueback, redfish, sockeye; O. gorbuscha, humpback; intro. & acclim.: Maine, Nevada, N.Y., Mass., N. Hampshire.

Johnson, Robert S. 1915

The distribution of fish and fish eggs during the fiscal year 1914. Rept. Comm'r Fish for 1914, U.S. Bur. Fish. Doc. No. 808, 1-114.

- Johnson, Robert S. (cont.) 1915
- O. gorbuscha, humpback; intro. & acclim.: Maine.
- Jones, E. Lester 1915
- Report of Alaska investigations in 1914 Dept. Commerce. Bur. Fisheries, 1-155.
- king; red, sockeye; pink, humpback; coho, silver; dog, chum; Alaska; figured; distribution.
- Jordan, David Starr 1884
- The salmon of the Pacific. (In: The Fisheries and Fishery Industries of the United States, by George Brown Goode and others Section I, Text, pp. 474-479, plates 188B, 189A, 189B, 190, 191A.) U.S. Commis. Fish & Fish. (1884-1887, 8 vols. (5 text vols., 3 vols. plates).
- O. keta, dog, kayak, Qualoch (Musquan, Fraser R.), ktla - why (Nisqually, at Seattle), le-kae (chinook jargon); O. gorbuscha, gorbuscha, humpback, dog, holia, hone (Fraser R.), Haddoh (Puget Sound); O. kisutch, silver, kisutch, bielaya ryba, whitefish, coho (Musquan on Fraser R.), skowitz (by Nisqually at Seattle), hoopid (Cape Flatter, by Makah), white; O. nerka, redfish, krasnaya ryba, suk-kegh; redfish of Fallow L., Idaho; range; weight at time of return; time species migrate upstream; distance travelled upstream; figured.
- Jordan, David Starr 1887a
- A catalogue of the fishes known to inhabit the waters of North America, North of the Tropic of Cancer, with notes on the species discovered in 1883 and 1884. Rept. Comm'r for 1885, U.S. Commis. Fish & Fish., 789-793.
- O. gorbuscha; O. keta; O. tschawytscha (sic); O. kisutch; O. nerka; distribution.
- Jordan, David Starr 1887b
- The fisheries of the Pacific Coast. (In: The Fisheries and Fishery Industries of the United States, by George Goode & others, Section II, pp. 589-600.)
- O. chouicha, sawkey; O. nerka, socheye; O. kisutch, silver, hoopid; O. gorbuscha, haddo; O. keta; distribution.
- Jordan, David Starr 1892
- Salmon and trout of the Pacific Coast. Bienn. Rept. State Bd. Fish Comm'ers, State of Cal. (1891-1892), 44-68. A reprint of Bull. No. 4, 1892, 5-19, Bd. of Fish Comm'ers.
- O. tschawyscha (sic), chinook, quinnat, king; O. nerka, blueback, redfish; O. kisutch, silver; O. keta, dog, chum; O. gorbuscha, humpback; Calif.; range; description; size at time of return; time of upstream migration; distance travelled upstream; spawning behavior; nature of spawning site; sexual dimorphism; color; post-spawning behavior; synonymy ("Hypsifario kennerlyi", koko); home stream theory; marking & recapture data; parasites, external.
- Jordan, David Starr 1894
- Salmon and trout of the Pacific coast. Thirteenth Bienn. Rept. State Bd. Fish Comm. State of Cal. (1893-1894), 125-141.
- Same, with several additions, as article in Bienn. Rept. State Bd. of Fish Comm. State of Calif. (1891-1892), 44-58.
- O. chouicha, quinnat; food & feeding habits; figured.

A checklist of the fishes and fishlike vertebrates of North and Middle America. Rept. Comm'r for 1895, U.S. Comm. Fish & Fish., 208-584.

O. gorbusha, humpback, haddo, holia, gorbusha, dog salmon of al sea; O. keta, dog, hoy-ko, le kai salmon; O. tschawytscha, (sic), quinnat, king, chinook, tschavitch, Columbia R. salmon, Sacramento R. salmon, tyee, saw-keey, chouicha or tschawytscha; O. kisutch, silver, kisutch, skowitz, hoopid, coho, bielaya, quisutch; subgenus Hynosifario; O. nerka, blueback, redfish, Fraser R. salmon, saw-qui, sockeye, saukeye, Krasnaya ryba; range; listed.

Salmon and trout of the Pacific Coast. Third & Fourth Ann. Repts. State Fish & Game Protector State of Ore. (1895-1896), 95-108.

O. tschawytscha (sic), quinnat, king, chinook; O. nerka, blueback, redfish; O. kisutch, silver; O. keta, dog; O. gorbusha, humpback; O. kennerlyi, "koko"; counts & measurements; figured; description; color; sexual dimorphism; distribution; movements in ocean; time species migrates upstream; age at time of return; distance travelled upstream; parasites; spawning behavior; nature of spawning site; post-spawning behavior; time eggs hatch; home stream theory; marking & recapture data.

Pacific species of salmon and trout. Appendix to Eighteenth Bienn. Rept. Bd. Fish Comm. State of Cal. (1903-1904), 75-97.

O. tschawytscha (sic), quinnat, tyee, chinook, king; O. nerka, blueback, redfish, sukkegh, sockeye; O. kisutch or O. milkschitch, silver, coho; O. keta, dog, calico, chum, sake; O. gor-

buscha, humpback, wink; O. masou, masu, yezomasu; O. nerka kennerlyi, koko, benimasre; Pacific waters; fossils; description; sexual dimorphism; distribution; distance travelled upstream; movements in ocean; external parasites; nature of spawning site; post-spawning behavior; color; time species migrates upstream; type of stream chosen; age at time of return.

The parent-stream theory of the return of salmon. Appendix to Eighteenth Bienn. Rept. Bd. Fish Comm. State of Cal. (1903-1904), 98-102 (from the Popular Science Monthly, Nov. 1903).

king; red; silver; humpback; dog; racial analysis, comments; movements in ocean; marking & recapture data; home stream theory.

The trout and salmon of the Pacific Coast. Appendix to Nineteenth Bienn. Rept. State Bd. Fish Comm'ers State of Cal. (1905-1906), 77-92.

O. tschawytscha, chinook, quinnat, king; O. nerka, blueback, Alaska red, Sukkegh, sockeye; O. milkschitch, silver; O. keta, dog, calico, sake; O. gorbusha, humpback; Pacific waters; sexual dimorphism; description; range; color.

The nomenclature of American fishes as affected by the opinions of the International Commission on Zoological Nomenclature. Copeia, 1916, No. 29, 25-28.

O. nerka; listed; synonymy.

- Jordan, David Starr 1923
Name of the steelhead. Copeia, No. 121, 85.
- O. nerka, blue backed salmon, sockeye; synonymy; counts & measurements (vertebral count).
- Jordan, David Starr, and Evermann, Barton Warren 1896
The fishes of North and Middle America. Bull. U.S. Nat'l Mus., No. 47, Parts 1-3, text, 1-3136, Part 4, plates, 3137-5313.
- O. quinnat; O. gorbusha, humpback, haddo, holia, gorbusha, dog; O. keta, dog, hay-ko, le kai; O. tschawytscha (sic), quinnat, tchaviche, king, Columbia, Sacramento, chinook, tyee, sawkivey, tschawytscha; O. kisutch, silver, kisutch, skowitz, hoopid, coho, bielaya ryba, kuisutch; O. nerka, blueback, redfish, Fraser River, saw-qui, krasnaya ryba; description; counts & measurements; color; synonymy; comparisons; range; distribution; time species migrates upstream; spawning behavior; spawning period; movements in ocean; post-spawning behavior; time eggs hatch; sexual dimorphism, body changes, color changes; distance travelled upstream; type of stream chosen; nature of spawning site; size of species at time of return; figured.
- Jordan, David S., and Gilbert, Charles H. 1881
Observations on the salmon of the Pacific. Amer. Nat., 15(3): 177-186.
- Not abstracted.
- Jordan, David S., and Gilbert, Charles H. 1882
Synopsis of the fishes of North America. Bull. U.S. Nat'l Mus., No. 16, 1-1018.
- Jordan, David S., and Gilbert, Charles H. (cont.) 1882
O. gorbusha, humpback, haddo, holia, gorbusha, dog; O. keta, dog, hay-ko, le kai; O. choucha, quinnat, king, Columbia, Sacramento, chinook, tyee, fall, spring, winter, saw-kwey, choucha; O. kisutch, silver, kisutch, skowitz, hoopid, coho, bielaya ryba; O. nerka, blue-back, red-fish, Fraser's River, sugk-eyl, krasnaya ryba; description; counts & measurements; color; synonymy; comparisons; distribution.
- Jordan, David Starr, and Gilbert, Charles H. 1887
The salmon fishing and canning interests of the Pacific coast (In: The Fisheries and Fishery Industries of the United States, by George Goode & others, Section V, 1: 731-753.)
- O. choucha, quinnat, king, chinook; O. nerka, blueback, redfish; O. kisutch, silver; O. keta, dog; O. gorbusha, humpback; Calif., Ore., Wash.; time species migrates upstream; size at time of return; range; type of stream chosen; spawning behavior; sexual dimorphism; color; distance travelled upstream; home stream theory.
- Jordan, David Starr, and McGregor, Ernest A. 1925
Family Salmonidae. (In: record of fishes obtained by David Starr Jordan in Japan, 1922, by Jordan & Hubbs. Memoirs Carnegie Museum, 10: 122-146, plates 5-8.)
- O. nerka, red, sock-eye, blue-back, krasnaya ryba; O. adonis, sp. nov.; O. kawamuræ, sp. nov.; O. gorbusha, karafuto-masu, koon-masu; O. keta, sake; O. tschawytscha, masunosuke; O. kisutch, ginmasu, silver; O. ishikawae, sp. nov., yamame, kawamasu; O. macrostomus, amenouwo (male), amaga (female), enoha; O. rhodurus, sp. nov.; Japan; comparisons (key); description; counts & measurements; figured; color; distribution.

- Jordan, David Starr, 1896
and Starks, Edwin Chapin
- Fishes of Puget Sound. Proc. Calif. Acad. Sci.; 5(Part 2): 785-855.
- O. tschawytscha, chinook, tyee; O. kisutch, silver, stowitz; O. keta, dog, le kay; O. gorbuscha, humpback, haddo; O. nerka, sockeye, blue-back; description; distribution; Puget Sound, Wash.; time species migrates upstream; time species returns from ocean to stream mouth; size of species at time of return.
- Juday, C. 1935
- Limnological studies of Karluk Lake, Alaska, 1926-1930. Bull. U.S. Bur. Fish, 47: 407-466, 6 figs., 14 tables.
- O. nerka, red; Karluk Lake, Kodiak Island, Alaska; food & feeding habits; time young stay in freshwater; age at time of return.
- K--
- Katz, Max 1950
- Some interesting cells in the blood of a diseased silver salmon fingerling. Copeia, No. 4, 295-298, 1 plate.
- O. kisutch, silver; histology; Swamp Creek, Wash.
- Katz, Max 1951
- The number of erythrocytes in the blood of the silver salmon. Trans. Amer. Fish Soc., 80: 184-193.
- O. kisutch, silver; counts of erythrocytes.
- Katz, Max, and Southward, Morris 1950
- The blood-clotting time in spent silver salmon, Oncorhynchus kisutch (Walbaum). Copeia, No. 2, 150.
- O. kisutch, silver; physiology; Auburn, Wash.
- Kauffman, Donald E. 1951
- Research report on the Washington State offshore troll fishery. Bull. 2, Pac. Marine Fish. Comm., 77-91, 4 figs., 11 tables.
- chinook; silver; Wash.; distribution; tagging & recapture data; migration routes; catch records; counts & measurements.
- Kauffman, Donald E., and Martin, John W. 1951
- Catalogue of salmon streams of southeastern Alaska, 1948-1950. Fish. Res. Inst., Univ. of Wash., approximately 1300 pages of tables and maps. Ozalid.
- Not abstracted.
- Kawakami, S. 1900a
- The ancestry of the salmon of Hokkaido. Hokkaido Suisan Shiken Jo Shi, Junpo (J. Hokkaido Fish. Lab., 10-day period report. No. 226.)
- Not abstracted.
- Kawakami, S. 1900b
- Regarding ancestry of Hokkaido salmon studied from the viewpoint of body measurements. Hokkaido Suisan Shiken Jo Shi, Junpo (J. Hokkaido Fish. Lab., 10-day period report. No. 244.)
- Not abstracted.

- Kelez, George B. 1937 The chronological order of Fraser River sockeye salmon during migration, spawning and death. Bull. Internat'l Pec. Sal. Fish. Comm., 1-95, 29 figs., 47 tables.
- Relation of size at release to proportionate return of hatchery-reared coho (silver) salmon. Prog. Fish Cult., No. 31, 33-36.
- coho, silver; Puget Sound; marking & recapture data; home stream theory; age at time of return.
- Kendall, William Converse 1913 O. nerka, sockeye; Fraser R., Can.; time species migrates upstream; distance travelled upstream; spawning period; racial analysis, p. 57-58; sex ratios; post-spawning behavior (time of death); tagging & recapture data.
- Fishes and fishing in Sunapee Lake. Rept. Comm. Fish. for 1912, U.S. Bur. Fish. Doc. No. 783, 1-26, 4 figs., 9 plates.
- Kimsey, J.L. 1951 Notes on Konomanee spawning in Donner Lake, California, 1949. Cal. Fish & Game, 37 (3): 275-279, figs. 109-112.
- O. tschawytscha (sic), king, spring; O. kisutch, silver, coho; Sunapee Lake, N. Hampshire; intro. & acclim.; Geneva Lake, Wisconsin, Lake Ontario, Pierce Pond, Kennebec R., Maine, Sunapee Lake, N. Hampshire; food & feeding habits; counts & measurements; color; figured.
- O. nerka kennerlyi, Konomanee red; O. nerka nerka, red; counts & measurements; Donner Lake, Calif.; time species migrate upstream; size at time of return; type of stream chosen; spawning period; nature of spawning site; sexual dimorphism, body changes; spawning behavior; time eggs hatch; behavior of fry & fingerlings; figured.
- Kendall, William Converse 1912 Peritoneal membranes, ovaries and oviducts of salmonoid fishes and their significance in fish-cultural practices. Bull. U.S. Bur. Fish., 37: 183-208, 11 text figs.
- Kimsey, J.L. 1955 Post-spawning behavior of the Konomanee, O. nerka kennerlyi, in Donner Lake, California. Copeia, No. 1, 51-52, 1 fig.
- O. nerka; O. kisutch; O. gorbuscha; O. tschawytscha (sic); anatomy (membranes, ovaries, oviducts).
- Kerr, James E. 1953 Studies on fish preservation at the Contra Costa stream plant of the Pacific Gas and Electric Company. Cal. Fish & Game, Fish Bull. No. 92, 1-66, 36 text-figs.
- O. nerka kennerlyi, Konomanee, landlocked red; Donner Lake, Calif.; spawning period; spawning behavior; post-spawning behavior.
- Kirkness, W., Parker, R.R., 1952 Edson, Q.A., Huiser, E.J., Thorson, K.N., and Weidman, Carl Biological research Taku River investigation. Rept. Alaska Fish. Bd., No. 4, (1952), 18-35, 5 figs., 10 tables, 4 plates.
- O. tschawytscha (sic), king; South Bank of San Joaquin R., Calif.; time species migrates upstream; time of seaward migration; behavior of fry & fingerlings.
- king; red; pink; silver; chum; Taku R., Alaska; tagging & recapture data; migration routes; size at time of return; age

- Kirkness, W., et al (cont.) 1952
at time of return; type of stream chosen; time species migrates upstream.
- Kirkness, W., Parker, R.R., 1953
Edson, Q.A., Huizer, E.L., Thorson, K.N., and Weidman, Carl Jr.
Biological research. Ann. Rept. Alaska Fish. Bd., No. 4, 18-40.
king; silver; red; pink; chum; Southeast Alaska; time species migrates upstream; catch records; size at time of return; tagging & recapture data; age at time of return; counts of migrant adults (fish wheels); distribution; racial analysis, detailed data (river races of red).
- Kobayashi, Harujiro 1934
Recent researches on Japanese fishes which serve as intermediate hosts of helminths. Proc. Fifth Pac. Sci. (1933), 5: 4157-4163.
O. masou; O. gorbusha; O. keta; O. nerka; Japan; parasites, internal: Dibothriocephalus latus, cestode.
- Kobayashi, Shinjiro 1955
Changes in catalase activity of the tissues and blood of "masu", Oncorhynchus masou, when transferred from fresh water to sea water. Bull. Fac. Fish., Hokkaido Univ., 6(1): 1-6, 2 figs., 3 tables.
O. masou, "masu"; Japan: biochemistry.
- Kobayashi, Shinjiro, 1954a
and Yuki, Ryogo
Differences in catalase activity in the tissues and blood between the smolt and parr of masu, Oncorhynchus masou, Bull. Fac. Fish., Hokkaido Univ., 5(3): 220-230, 2 figs., 3 tables. Japanese with English abstract.
O. masou; Penan; time eggs hatch; time young spend in freshwater; time of seaward migration; growth rates (hatchery); biochemistry.
- Kobayashi, Shinjiro, 1954b
and Yuki, Ryogo
On the specificity of kidney catalase activity in salmonid fishes. Bull. Fac. Fisheries, Hokkaido Univ., 5(2): 137-148, 4 tables. Japanese with English abstract.
O. keta, chum; O. nerka, landlocked red; O. masou, masu; Hokkaido, Japan; biochemistry.
- Kobayashi, Tetsuo 1953
An ecological study on the salmon fry, Oncorhynchus keta (III) Observation on the descending of the salmon fry I. Sci. Rept. Hokkaido Fish Hatch., 8(1-2): 31-35, 3 figs., 3 tables. Japanese with English abstract.
O. keta; Japan; behavior of fry & fingerlings.
- Kobayashi, Tetsuo 1955
A consideration on the method of measuring the scale size of the salmon (O. keta). Sci. Repts. Hokkaido Fish Hatchery, 10(1-2): 33-41; 2 figs., 7 tables. Japanese with English abstract and headings.
O. keta, chum; Hokkaido, Japan; scale figured; growth rates from scale studies; counts & measurements.

- Kobayasi, Hisao 1951
On the value of scale character considered as materials for the study of affinity in fishes. Jap. J. Ichthyology, 1(4): 226-237, 9 text-figs. Japanese with English abstract.
- O. masou, saramaomase, yamame; O. rhodurus, amago; Japan; comparisons: difference in scales between the two species.
- Kobayasi, Hisao 1952
Comparative studies of the scales in Japanese freshwater fishes, with special reference to phylogeny and evolution. I. Introduction. II. Tables of fishes used in this study. Jap. J. Ichthyology, 2(415): 183-191.
- O. nerka; O. nerka adonis; O. kawamurae; O. gorbuscha; O. keta; O. kisutch; O. tschawytscha (sic); O. masou; O. masou macrostoma; O. rhodurus; listed.
- Kobayasi, Hisao 1953
Comparative studies of the scales in Japanese freshwater fishes, with special reference to phylogeny and evolution. III. General lepidology of freshwater fishes. Jap. J. Ichthyology, 11(6): 246-260, 11 text-figs.
- O. rhodurus; O. masou; Japan; comparisons (scales); racial analysis, comments only (importance of scales).
- Kobayasi, Hisao 1955
Comparative studies of the scales in Japanese freshwater fishes, with special reference to phylogeny and evolution. IV. Particular lepidology of freshwater fishes I. Suborder Isospondyli (continued). Jap. J. Ichthyology, 4(1-3): 64-75, fig. 19.
- O. kawamurae; O. nerka; O. adonis; O. gorbuscha; O. keta; O. masou; O. tschawyt-
- Kobayasi, Hisao (cont.) 1955
cha (sic); O. kisutch; O. macrostoma; O. rhodurus; Japan; comparisons (relationships, scale pattern); scales figured.
- Konstantinov, A.S. 1951
Nutrition of juvenile chum salmon, (Oncorhynchus keta, Berg) in the Amur Basin. Zoologicheskii Zhurnal 30(6): 586-589. Abstract translated from Russian & summarized by Dr. G. Mares, Pacific Biological Station, Nanaimo, B.C., two typewritten pages.
- O. keta, chum; Amur Basin; food & feeding habits, stream; larval chum.
- Koo, Ted Swei-yen 1955
Biology of the red salmon, Oncorhynchus nerka (Walbaum) of Bristol Bay, Alaska as revealed by a study of their scales. Thesis submitted for Degree of Doctor of Philosophy, University of Washington, Seattle, Wash., May 25, 1955, 1-164, 49 figs., 9 tables.
- Not abstracted.
- Kubo, Tatsuro 1947
Scale pattern and ecology of chum salmon. I. Sci. Rept. Hokkaido Fish Hatchery, 2(1): 16-25.
- Not abstracted.
- Kubo, Tatsuro 1949
Scale pattern and ecology of chum salmon. II. Sci. Rept. Hokkaido Fish Hatchery, 4(2): 79-94.
- Not abstracted.

- Kubo, Tatsuro 1950 A preliminary report of the study of the groups of Oncorhynchus keta (Walbaum) (dog salmon) and the numbers of their segments. (Japanese with English abstract.) Bull. Fac. Fish. Hokkaido Univ., 1(1): 1-11, 3 figs., 9 tables.
Not abstracted.
- Kubo, Tatsuro 1954 Some nitrogen compounds of blood and metamorphosis of Oncorhynchus masou. Bull. Fac. Fish., Hokkaido Univ., 5(3): 248-252, 1 fig., 3 tables. Japanese with English abstract.
O. masou; Japan; biochemistry.
- Kubo, Tatsuro 1955 Changes of some characteristics of blood of smolts of O. masou during seaward migration. Bull. Fac. Fish., Hokkaido Univ., 6(3): 201-207, 2 figs., 2 tables. Japanese with English abstract.
O. masou, sakura-masu; Japan; distribution; biochemistry; behavior of smolts.
- Kubo, Tatsuro, and Kobayashi, Tetsuo 1953 Some populations of dog salmon (Oncorhynchus keta (Walbaum)) in the Ishikari River system, Hokkaido, and the numbers of their vertebrae and lateral line scales. Bull. Jap. Soc. Sci. Fish., 19(4): 287-302, 2 figs., 8 tables. Japanese with English abstract and headings.
Not abstracted.
- Kuitunen-Ekbaum, E. 1933a 8: 71-75, 1 fig.
O. nerka, sockeye; parasite, internal, nematode; English Bay, B.C.
- Kuitunen-Ekbaum, E. 1933b A study of the cestode genus Eubothrium of Nybelin in Canadian fishes. Contrib. Can. Biol. Fish., N.S., 8: 89-98, 3 figs.
O. nerka kennerlyi; Nanaimo Lakes, B.C.; parasite, internal: Eubothrium salvelini, pyloric caeca.
- Kuroda, Nagamichi 1953 Fishes of Lake Biwa, with their distribution records. Jap J. Ichthyology, 11(6): 271-284. Japanese with English abstract.
O. nerka; O. rhodurus; O. keta; O. masou; O. gorbuscha; listed; distribution.
- Kuznetsov, I.I. 1928 Some observations on spawning of the Amur and Kamtchatka salmon. Bull. Pac. Fish. Res. Station, Vladivostok, 2(3): excerpts from pp. 1-124. Translated from Russian & summarized by Dr. G. Mares, Pac. Biol. Sta., Nanaimo, B.C., Canada. 10 typewritten pages.
O. tschawytscha (sic), king; O. nerka, red, Krasnaja; O. keta, chum; O. kisutch, silver; O. masu, sima; Amur basin & Kamchatka; time species migrates upstream; sexual dimorphism; egg counts; distance travelled upstream; size at time of return (in original only); type of stream chosen; spawning behavior; description of redds (in detail in original); incubation period; hybridization; age at time of return; counts of migrant adults.
- Philonema oncorhynchi Nov. Gen. et Spec. Contrib. Can. Biol. Fish., N.S.,

Lawler, G.H., and 1954
Scott, W.B.

Notes on the geographical distribution and the hosts of the cestode genus Trienophorus in North America. J. Fish. Res. Bd. Can., 11(6): 884-895, 1 fig., 4 tables.

O. nerka; Wood R., Lakes system, Alaska; parasites, external

sockeye, blueback, redfish; O. keta, chum, dog; spawning period; intro. & acclim.: Maryland, N. Hampshire.

Leach, Glen C.

1925

Propagation and distribution of food fishes, fiscal year 1924. Rept. Comm'er Fish. for 1924, U.S. Bur. Fish. Doc. No. 978, 361-440, 2 figs.

Leach, Glen C. 1922

Propagation and distribution of food fishes, 1921. Rept. Comm'er Fish. for 1921, U.S. Bur. Fish. Doc. No. 912, 1-94.

chinook; intro. & acclim.: Illinois, Montana, Maine (humpback success), Idaho; distribution; sockeye in Skykomish R. & Elwell Cr., Wash.; time species migrates upstream.

O. tschawytscha (sic), chinook, king, quinnat; O. keta, chum, dog; O. kisutch, silver, coho; O. nerka, sockeye, blueback, redfish; intro. & acclim.: Calif. to Wash., Alaska to Wash., Wash. to Ore., to Maine; spawning period (esp. p. 73); nature of spawning site: tidewater area; time eggs hatch.

Leach, Glen C.

1926

Propagation and distribution of food fishes, 1925. Rept. Comm'er Fish. for 1925, U.S. Bur. Fish. Doc. No. 999, 439-500, 8 figs.

O. tschawytscha, chinook, king, quinnat; O. keta, chum, dog; O. gorbuscha, humpback, pink; O. kisutch, silver, coho; Afognak, Alaska; time species migrate upstream.

Leach, Glen C. 1923

Propagation and distribution of food fishes, 1922. Rept. Comm'er Fish. for 1922, U.S. Bur. Fish. Doc. No. 941, 1-100, 7 figs.

Leach, Glen C.

1927

Propagation and distribution of food fishes, 1926. Rept. Comm'er Fish. for 1926, U.S. Bur. Fish. Doc. No. 1011, 1-384.

O. nerka, sockeye, blueback, redfish; O. tschawytscha (sic), chinook, king, quinnat; O. gorbuscha, humpback, pink; intro. & acclim.: Maine, Maryland (p. 88); spawning period.

O. tschawytscha (sic), chinook, king, quinnat; O. keta, chum, dog; O. kisutch, silver, coho; O. nerka, sockeye, blueback, red; Alaska, Wash., Ore., Calif.; intro. & acclim.; time species migrates upstream.

Leach, Glen C. 1924

Propagation and distribution of food fishes, 1923. Rept. Comm'er Fish. for 1923, U.S. Bur. Fish. Doc. No. 964, 1-108, 3 figs.

Leach, Glen C.

1928

Propagation and distribution of food fishes, 1927. Rept. Comm'er Fish. for 1927, U.S. Bur. Fish. Doc.

O. kisutch, coho, silver; O. tschawytscha (sic), chinook, king, quinnat; O. gorbuscha, humpback, pink; O. nerka,

- Leach, Glen C. (cont.) 1928
No. 1033, 683-736, 4 figs.
O. tschawytscha (sic), chinook, king, quinnat; O. keta, chum; O. gorbuscha, humpback, pink; O. kisutch, silver, coho; O. nerka, sockeye, blueback, red; intro. & acclim.: Hawaii, Illinois; spawning period.
- Leach, Glen C. 1930
Propagation and distribution of food fishes, 1929. Rept. Comm'er Fish. for 1929, U.S. Bur. Fish. Doc. No. 1370, 759-823.
O. tschawytscha (sic), chinook, king, quinnat; O. keta, chum; O. gorbuscha, humpback, pink; O. kisutch, silver, coho; O. nerka, sockeye, blueback, red; Alaska, U.S.; spawning period.
- Leach, Glen C. 1931
Propagation and distribution of food fishes, 1930. Rept. Comm'er Fish. for 1930, U.S. Bur. Fish. Doc. No. 1098, 1123-1191.
O. tschawytscha (sic), chinook, king, quinnat; O. keta, chum; O. gorbuscha, humpback, pink; O. nerka, sockeye, blueback, red; Pacific coast; spawning period; intro. & acclim.: chum to Utah.
- Leach, Glen C. 1932
Propagation and distribution of food fishes, 1931. Rept. U.S. Comm'er Fish. for 1932, Appendix IV, 627-690, 2 figs.
O. tschawytscha (sic), chinook, king, quinnat; O. keta, chum; O. gorbuscha, humpback, pink; O. kisutch, silver, coho; O. nerka, sockeye, blueback, red; Alaska, U.S.; spawning period; intro. & acclim.; time species migrates upstream.
- Leach, Glen C., and James, M.C. 1937
Propagation and distribution of food fishes, 1936. Administrative rept. No. 35, Appendix III to Rept. U.S. Comm'er Fish. for 1936, 349-379.
silver; intro. & acclim.: Virginia, W. Virginia, Maryland.
- Leach, Glen C., and James, M.C. 1939
Propagation and distribution of food fishes. Administrative Rept. No. 33, Appendix IV to Rept. U.S. Comm'er Fish. for 1937, 461-492.
silver; sockeye; intro. & acclim.: Maryland, Utah, W. Virginia.
- Leach, Glen C., James, M.C., and Douglass, E.J. 1939
Propagation and distribution of food fishes. Administrative Rept. No. 34, Appendix IV, Rept. U.S. Comm'er Fish. for 1938, 461-494.
chum; intro. & acclim.: Utah.
- Leach, Glen C., James, M.C., and Douglass, E.J. 1941
Propagation and distribution of food fishes, 1939. Administrative Rept. No. 38, Rept. U.S. Comm'er Fish. for 1939, 555-598.
sockeye; chum; landlocked sockeye; silver; intro. & acclim.: Idaho, Utah.
- Linton, Edwin 1941
Trematodes from fishes mainly from the Woods Hole region, Massachusetts. Proc. U.S. Nat'l Mus., 88(3078): 1-172, 5 figs., 3 plates.
O. tschawytscha (sic), chinook; distribution; parasites, internal.

- Little, A.C. 1898 Loomis, Wm. T. 1884
- Ninth Ann. Rept. State Fish Comm'r,
State of Wash. Dept. Fish & Game
for 1898, 1-93.
- A landlocked salmon caught in Erie
Canal. Bull. U.S. Fish Comm.,
4: 288.
- quinnat, royal chinook; Wash.; racial
analysis; time species migrates up-
stream; distribution.
- California salmon; Mohawk R.; intro. &
acclim.: Erie Canal.
- Locke, S.B. 1929 Lowe, Charles W. 1936
- Whitefish, grayling, trout and salmon
of the intermountain region. Rept.
Comm'r Fish. for 1929, U.S. Bur. Fish.
Doc. No. 1062, 173-190.
- Observations on some Pacific diatoms
as the food of copepods and fishes.
J. Biol. Bd. Can., 3: 16-19, 2 tables.
- O. tschawytscha, chinook; O. kisutch,
silver, coho; O. nerka, big redfish,
blueback (sockeye or red salmon in
Alaska); O. nerka kennerlyi, little
redfish, silver trout, silverside;
O. keta, dog; figured; comparisons
(key); distribution; intro. & acclim.:
Utah; distance travelled upstream;
spawning period; time young spend in
freshwater; post-spawning behavior (death);
size at time of return; sexual di-
morphism; range; color; food & feeding
habits.
- O. keta, chum; O. tschawytscha (sic),
spring; food & feeding habits.
- Lowman, F.G. 1936
- Electron microscope studies of silver
salmon spermatozoa (Oncorhynchus
kisutch (Walbaum)). Exp. Cell Res.,
5(2): 365-360. 2 figs., 2 tables,
8 plates.
- Not abstracted.
- Lowman, F.G., and Jensen, 1955
L.H.
- Preliminary note on X-ray diffraction
studies with the tails of
spermatozoa of silver salmon (Oncor-
hynchus kisutch). Biochem. et
Biophys. Acta, 16: 438-439.
- Not abstracted.
- Lockington, W.N. 1879
- Report upon the food fishes of San
Francisco. Rept. Comm'r Fish.
Cal. for 1878-1879, 17-58.
- O. quinnat listed; San Francisco Bay.
- Lockington, W.N. 1880
- Report upon the edible fishes of
the Pacific Coast, U.S.A. Rept.
Comm'r Fish. Cal., 16-66.
- O. nerka, blueback, rascal, sockeye,
redfish, dog; O. gorbuscha, humpback;
O. quinnat, king; O. kisutch, dog; O.
keta, silverside, coho, tsuppitch; O.
kennerlyi, redfish; Pacific Coast; range;
spawning behavior; sexual dimorphism;
description; color.
- The Skeena River investigation.
Progr. Rept. Biol. Stas. Nanaimo &
Prince Rupert. Biol. Bd. Can.,
No. 8, 6-10.
- sockeye, coho; Skeena R., B.C.; counts
of migrant adults; nature of spawning
site.

--M--

- MacKinnon, D., and Brett, J.R. 1953
Fluctuations in the hourly rate of migration of adult coho and spring salmon up the Stamp Falls fish ladder. Progr. Rept. Pac. Coast Stas., Fish. Res. Bd. Can., No. 95, 53-55, 2 figs.
- O. kisutch, coho; O. tschawytscha (sic), spring; Stamp Falls, B.C.; leaping.
- MacKinnon, D., and Brett, J.R. 1955
Some observations on the movement of Pacific salmon fry through a small impounded water basin. J. Fish. Res. Bd. Can., 12: 362-368.
- Oncorhynchus: pink; chum; coho; spring; sockeye; behavior of fry & fingerlings; time of seaward migration.
- Maeda, Hiroshi 1955
Ecological analyses of pelagic shoals I. Analysis of salmon gill-net association in the Aleutians, 3. Differences between the food-selectivities of five species of salmon. (Reprint from Contrib. Shimonoseki College Fisheries, No. 106) Jap. J. Ichthyology, 4(4-6): 136-138, 2 tables.
- O. nerka; O. keta; O. gorbuscha; O. kisutch; O. tschawytscha (sic); locality: Japan; food & feeding habits.
- Manzer, J.I. 1946
Interesting movements as shown by the recoveries of certain species of tagged fish. Progr. Rept. Pac. Coast Stas., Fish. Res. Bd. Can., No. 67, 31.
- spring; movements in ocean.
- Marine Fisheries Branch (Staff) 1954
The commercial fish catch of California for the year 1952 with proportion of king and silver salmon in California's 1952 landings. Cal. Fish & Game, Fish Bull. No. 95, 1-64, 7 text-figs.
- O. tschawytscha (sic), king; O. kisutch, silver; catch records.
- Marr, John C. 1944
Age, length and weight studies of three species of Columbia River salmon. Contrib. Fish. Comm. State of Ore., Contrib. No. 9, 157-197, 23 figs., 21 tables. Also in Stanford Ichthyological Bull, 2(6): 157-197. 1943.
- O. tschawytscha (sic), chinook, tyee, spring, quinnat, king; O. nerka, blue-back, sockeye; O. kisutch, silver, coho; O. keta, chum, dog; O. gorbuscha, pink, humpback; Columbia River; scales figured; growth rates from scale studies & direct measurement; time of seaward migration; time species migrate upstream; sexual dimorphism; sex ratios; racial analysis - detailed data.
- Marsh, Millard C., and Cobb, John N. 1907
The fisheries of Alaska in 1907. Rept. U.S. Bur. Fish., Fish. Doc. No. 632, 1-64.
- coho, silver; dog, chum; humpback, pink; king, spring; redfish; Alaska; distribution; spawning period; marking & recapture data; white & red mottled kings.
- Marsh, Millard C., and Cobb, John N. 1908
The fisheries of Alaska in 1908. Rept. U.S. Bur. Fish. for 1908, Fish. Doc. No. 645, 1-78.

- Marsh, Millard C., and 1908
Cobb, John N. (cont.)
king, spring; coho, silver; dog, chum;
humpback, pink; sockeye, red; Alaska,
Lake Aleknagik; distribution; spawning
period; red & white meated kings; food
& feeding habits; time species migrates
upstream; color; marking & recapture
data.
- Marsh, Millard C., and 1910
Cobb, John N.
The fisheries of Alaska in 1909.
Rept. U.S. Bur. Fish for 1909, Fish.
Doc. No. 730, 1-58.
king, spring; coho, silver; humpback,
pink; dog, chum; red, sockeye; Alaska,
Lake Aleknagik; size at time of return;
marking & recapture data; time species
migrates upstream; time eggs hatch.
- Marsh, Millard C., and 1911
Cobb, John N.
The fisheries of Alaska in 1910. Rept.
U.S. Bur. Fish for 1910, Fish. Doc.
No. 746, 1-72.
coho, silver; dog, chum; humpback,
pink; king, spring; red, sockeye; Alaska,
Wood & Nushagak Rivers; marking & re-
capture data; homing instinct; spawning
period.
- Maslicurat-Lagemard, Dr. 1884
Acclimatization of Salmo quinnat in
France. Bull. U.S. Fish Comm., 4:144.
Salmo quinnat; intro. & acclim.: France.
- Mathisen, L.M. 1950
Salmon fishing at Winchester Bay. Bull.
Ore. State Game Comm., 5(6): 5,8.
chinook; silver; Winchester Bay, Ore.;
catch records; movements in ocean.
- McConnell, J.A., and 1946
Lakes of the Skeena River drainage III.
Kitwanga Lake. Progr. Rept. Pac. Coast
Stas., Fish. Res. Bd. Can., No. 68,
55-59.
O. nerka, sockeye; O. gorbuscha, pink;
O. kisutch, coho; Kitwanga Lake, B.C.;
racial analysis; nature of spawning
site.
- McDonald, Marshall 1893
Rept. U.S. Comm. Fish & Fish. for
1889-1890 and 1890-1891. Rept. Comm'er
for 1889-1891, U.S. Comm. Fish &
Fish., 1-96.
quinnat; intro. & acclim.: France,
Norway, Oregon.
- McDonald, Marshall 1894a
Report on the salmon fisheries of
Alaska. Bull. U.S. Fish. Comm.,
12: 1-20, 9 plates.
O. nerka, red, blueback; O. chouicha,
king; O. kisutch, silver; O. gorbuscha,
humpback; O. keta, dog; Alaska; range;
time species migrates upstream; type
of stream chosen; O. gorbuscha most
abundant and smallest salmon in
Alaska; distribution.
- McDonald, Marshall 1894b
Rept. U.S. Comm'er Fish & Fish.
for 1892, U.S. Comm. Fish & Fish.,
vii-lxxxvii.
O. chouicha, quinnat; intro. & acclim.:
Mexico, Oregon, Long Island, N.J.,
Vermont.

The salmon fisheries of the Columbia River basin. Rept. Comm'er Fish & Fish. on Investigations in the Columbia River Basin in regard to the Salmon Fisheries, 1-57, tables A-G, 8 plates.

chinook; blueback; silver; Columbia R., Wash., Ore.; time young spend in freshwater; size at time of seaward migration.

A possible separation of the river races of king salmon in ocean-caught fish by means of anatomical characteristics. Cal. Fish & Game, 9(4): 138-150, 10 tables, 3 graphs.

king, chinook; Sacramento R., Klamath R., San Joaquin R.; counts & measurements; racial analysis, detailed data; egg counts.

The salmon fisheries of the Columbia River basin. Bull. U.S. Fish Comm., 14: 153-168, 8 tables, plates 13-15.

chinook; blueback; silver; distribution; Columbia R.; distance travelled upstream; size at time of seaward migration; weight at time of return; time young spend in freshwater.

Report on the work of removal of obstructions to the ascent of salmon on the Fraser River at Hell's Gate, Scuzzy Rapids, China Bar, and White's Creek during the year 1914 and the early portion of the year 1915. Rept. Comm'er Fish. 1914, Prov. Brit. Col., 20-31, 1 fig.

spring; sockeye; coho; humpback; dog; time species returns from ocean to stream mouth.

Migrating salmon at the Redding Dam, Calif. Fish & Game, 8(3): 141-154.

salmon; leaping; Redding Dam, Sacramento R., Calif.

Some factors influencing the trends of salmon populations in Oregon. Trans. 15th No. Amer. Wildlife Conf. Wash., D.C., 427-449, 13 figs.

Observations on the egg yield of Klamath River king salmon. Cal. Fish & Game, 8(3): 160-176, 9 tables.

king; counts & measurements; egg counts.

O. tshawytscha, chinook; O. kisutch, silver; Oregon; range; age at time of return; time species migrate upstream; tagging & recapture data; counts of migrant adults; time young spend in freshwater.

Notes on the egg yield of Sacramento River king salmon. Cal. Fish & Game, 9(4): 124-138, 1 table, 1 graph.

king; Klamath R., Sacramento R.; egg counts.

Late spring spawnings of chinook salmon. Cal. Fish & Game, 31(4): 211.

O. tshawytscha, chinook, king; distribution; Sacramento R., Cal.; time species migrates upstream; size at time of return; spawning period; spawning behavior.

- McMahon, V.H. 1948
Lakes of the Skeena River drainage.
VII. Morrison Lake. Progr. Repts.
Pac. Coast Stas., Fish. Res. Bd. Can.,
No. 74, 6-9.
- O. nerka, sockeye; O. nerka kennerlyi;
Morrison Lake, B.C.; distribution.
- Meehan, O. Lloyd 1941
A review of the parasitic crustacea
of the genus Argulus in the collections
of the United States National Museum.
Proc. U.S. Nat'l Mus., 88(3087):
459-522, 1 fig.
- O. kisutch; parasites, external.
- Mihara, Tateo, and 1955
Eguchi, Hiroshi
A consideration on the frequency of
length, weight, condition factor and
on the secular variation of Kokanee
salmon (O. nerka) in Lake Shikotsu,
(1899-1955). Sci. Repts. Hokkaido
Fish Hatchery, 10(1-2): 63-71,
3 figs., 34 tables. Japanese, no
English abstract.
- Mihara, Tateo, Ito, Sigeru, 1951
Hachiya, Toshio, and Ichikawa, Mtyoe
Studies on the change of fishing
conditions of salmon in Hokkaido
(I) (The fishing conditions on
salmon) Sci. Rept. Hokkaido Fish
Hatchery, 6(1-2): 27-133, figs.
& tables. Japanese with English
abstract.
- Japan; home stream theory; age at
time of return; movements in ocean.
- Miller, Robert R., 1948
and Miller, Ralph G.
The contribution of the Columbia
River system to the fish fauna of
Nevada: five species unrecorded from
the state. Copeia, No. 3, 174-187,
1 map.
- O. tschawytscha (sic); small tribu-
tary of South Fork of Owyhee R.,
Bruneau R., Owyhee R., Idaho,
Nevada; distribution.
- Milne, D.J. 1949
Salmon tagging off the Skeena River
in 1948. Progr. Rept. Pac. Coast
Stas. Fish. Res. Bd. Can., No. 80,
50-51.
- sockeye; Skeena R., B.C.; tagging &
recapture data on migration rate.
- Milne, D.J. 1950a
The difference in the growth of coho
salmon on the east and west coasts
of Vancouver Island in 1950. Progr.
Rept. Pac. Coast Stas., Fish. Res.
Bd. Can., No. 85, 9.
- coho; Brit. Col.; migration routes;
weight at time of return.
- Milne, D.J. 1950b
Moricetown Falls as a hazard to
salmon migration. Bull. Fish Res.
Bd. Can., No. 86, 16, 7 figs.,
1 table.
- spring; coho; sockeye; pink; Skeena R.,
B.C.; time species migrates upstream.

- Milne, D.J. 1952
The coho salmon run off the northern part of the West coast of Vancouver Island in 1951. Progr. Rept. Pac. Coast Stas., Fish. Res. Bd. Can., No. 91, 28-30.

coho; Brit. Col.; catch records; tagging & recapture data on migration routes.
- Milne, D.J. 1955
The Skeena River salmon fishery, with special reference to sockeye salmon. J. Fish. Res. Bd. Can., 12: 451-485, 10 figs., 9 tables.

O. nerka, sockeye; O. gorbuscha, pink; O. tshawytscha (sic), spring; O. kisutch, coho; O. keta, chum; Skeena R., B.C.; time species migrates upstream; sex ratios; tagging & recapture data; age at time of return; racial analysis.
- Milne, D.J., and Pritchard, A.L. 1948
The true picture of the 1947 Skeena River sockeye run. Progr. Rept. Pac. Coast Stas., Fish. Res. Bd. Can., No. 75, 46-47.

sockeye; Skeena R., B.C.; counts of migrant adults.
- Milne, John Adam 1913
Pacific salmon: an attempt to evolve something of their history from an examination of their scales. Proceedings Zool. Soc. London for 1913, 572-610, figs. 95-118.

O. quinnat or O. tshawytscha, quinnat, king, black, chinook, white spring, tyee, spring; O. nerka, sockeye, blueback, red; O. kisutch, coho, silver white, fall; O. gorbuscha, humpback; O. keta, dog, chum, sake, kita; O. nasu; scales figured; growth rate from scale studies; range; time species migrates upstream; time young spend in fresh-water; age at time of return; counts & measurements; catch records; size at time of seaward migration; synonymy.
- Milne, John Adam 1917
Further applications of scale reading to the solution of practical problems Salm. Trout Mag., 35-41.

sockeye; Brit. Col.; home stream theory; tagging & recapture data; racial analysis; time of seaward migration; age at time of return.
- Milner, James W. 1874
Notes on the grayling of North America. Rept. Comm'r for 1872-1873, U.S. Comm. Fish & Fish., 729-742.

Salmo quinnat, Sacramento salmon; S. kennerleyi; spawning period.
- Moffett, James W. 1949
The first four years of king salmon maintenance below Shasta Dam, Sacramento River, California. Cal. Fish & Game, 35(2): 77-102.

O. tshawytscha, king; distribution; Sacramento R., Calif.; time species migrates upstream; type of stream chosen; spawning period; time of seaward migration; length at time of seaward migration.
- Moffett, James W., and Smith, Stanford H. 1950
Biological investigations of the fishery resources of Trinity River, California. Spec. Sci. Rept. Fish., U.S. Fish & Wildlife Service, No. 12, 1-71, 13 figs., 24 tables. Processed.

Moffett, James W., and
Smith, Stanford H. (cont.)

1950

O. tschawytscha (sic), king; O. kisutch, silver; Trinity R., Calif.; time of upstream migration; migrating behavior; spawning period; time fry emerge from gravel; time of seaward migration; size at time of seaward migration; time young spend in freshwater; sex ratios; egg counts; behavior of fry & fingerlings (migration); size at time of return.

Morgan, Alfred R., and
Cleaver, F.C.

1954

The 1951 Alsea River silver salmon tagging program. Fish Comm. State of Ore., Contrib. No. 21, 1-30, 6 figs., 16 tables.

O. kisutch, silver; Alsea R., Ore.; catch records; tagging & recapture data.

Mori, Tamezo

1934

On the geographical distribution of Korean Salmonidae. Proc. Fifth Pac. Sci. Cong., (1933), 5: 3775-3776.

O. lagocephalus; O. masou; O. keta; O. gorbusha; O. macrostomus; landlocked species; Korea; distribution.

Mori, Tamezo

1952

Check list of the fishes of Korea. Biol. Ser. (No. 1) Memoirs of the Hyogo Univ. of Agriculture. 1(3):1-228.

O. masou, masu; O. lagocephalus, kitano-masu; O. keta, sake; O. gorbusha, karafuto masu; O. macrostomus, yamame; distribution.

Moser, Jefferson F.

1898

Report on the work of the steamer Albatross (Abstract). Rept. Comm'r for 1897, U.S. Comm. Fish & Fish., cxlvii-clxxi.

dog; humpback; Nikol'ski, Bering Is., Priobrajenski, Copper Island, Petropaulski Harbor; distribution.

Moser, Jefferson F.

1899

The salmon and salmo fisheries of Alaska. Bull. U.S. Fish. Comm., 18: 1-178, figs. & tables, 63 plates.

O. nerka, redfish, blueback, Fraser R. salmon, saw-gui, sockeye, saukeye, krasnaya ryba; O. gorbusha, humpback; O. kisutch, silver, skowitz, hoopid, bielaya ryba, kisutch, quisutsch; O. tschawytscha, king, quinnat, chinook, Columbia salmon, Sacramento salmon, tyee, saukeye, chouicha, tschavitch, spring; O. keta, dog; relative abundance of species; Alaska; figured; time species migrates upstream; spawning period; time eggs hatch; time of seaward migration; small redfish called "arctic salmon" at Klawak Lake; nature of spawning site; behavior of fry & fingerlings; sex ratios; spawning behavior; distribution; weight at time of return; arctic salmon, probably a small redfish, in Chignik R., p. 169; catch records; racial analysis, comments, p. 14, 140.

Moser, Jefferson F.

1902

Salmon investigations of the steamer Albatross in the summer of 1900 and 1901. Bull. U.S. Fish. Comm., 21:173-398, numerous figs., 44 plates, 1 chart.

redfish, cohoe; Alaska; time species migrates upstream; distribution; relative abundance of species; egg counts & size (p. 306-335); home stream theory, p. 308; sex ratios; response of fry to salt, p. 347; catch records; intro. & acclim.: barren lakes; size at time of seaward migration.

Motherwell, J.A.	1934	Motherwell, J.A.	1940
The salmon-spawning areas. Rept. Comm'er Fish. for 1933, Prov. Brit. Col., 48-55.		Report on inspection of salmon spawning grounds, 1939. Rept. Prov. Fish. Dept., 1939, Prov. Brit. Col., 73-79.	
sockeye; pink; spring; coho; chum; Fraser R., Skeena R., Rivers Inlet, Nass R., B.C.; distribution; spawning period.		sockeye; pink; chum; spring; coho; Brit. Col.; distribution.	
Motherwell, J.A.	1935	Motherwell, J.A.	1941
Condition of British Columbia salmon spawning grounds. Rept. Comm'er Fish. for 1934, Prov. Brit. Col., 59-67.		Report on inspection of salmon spawning grounds 1940. Rept. Prov. Fish. Dept., 1940, Prov. Brit. Col., 93-99.	
sockeye; coho; spring; pink; chum; Brit. Col.; distribution.		sockeye; chum; pink; spring; coho; Brit. Col.; distribution.	
Motherwell, J.A.	1937	Motherwell, J.A.	1942
Report on salmon spawning grounds, 1936. Rept. Prov. Fish. Dept., 1936, Prov. Brit. Col., 68-74.		Spawning report, British Columbia, 1941 Rept. Prov. Fish. Dept., 1941, Prov. Brit. Col., 86-92.	
sockeye; chum; pink; coho; spring; Brit. Col.; distribution.		sockeye; chum; pink; spring; coho; Brit. Col.; distribution.	
Motherwell, J.A.	1938	Motherwell, J.A.	1943
Report on inspection of salmon-spawning grounds, 1937 Rept. Prov. Fish. Dept., 1937, Prov. Brit. Col., 104-109.		Spawning report, British Columbia, 1942. Rept. Prov. Fish. Dept., 1942, Prov. Brit. Col., 78-84.	
sockeye; pink; chum; spring; coho; Brit. Col.; distribution.		sockeye; chum; coho; pink; spring; Brit. Col.; distribution.	
Motherwell, J.A.	1939	Motherwell, J.A.	1944
Report on inspection of salmon-spawning grounds, 1938. Rept. Prov. Fish. Dept., 1938, Prov. Brit. Col., 85-91.		Spawning report, British Columbia, 1943. Rept. Prov. Fish. Dept., 1943, Prov. Brit. Col., 98-105.	
sockeye; pink; chum; coho; spring; Brit. Col.; distribution.		sockeye; pink; coho; chum; spring; Brit. Col.; distribution.	

- Motherwell, J.A. 1946
Spawning report, British Columbia, 1945. Rept. Prov. Fish. Dept., 1945, Prov. Brit. Col., 78-84.
sockeye; spring; coho; pink; chum; Brit. Col.; distribution.
- Mottley, Charles McC. 1929
Report on the study of the scales of the spring salmon, Oncorhynchus tshawytscha, tagged in 1926 and 1927 off the west coast of Vancouver Is. Contrib. Can. Biol. Fish N.S., 4: 471-493, 7 tables, 3 plates.
O. tshawytscha, spring; Vancouver Is., B.C.; time eggs hatch; time of seaward migration; age at time of return (age groups); movements in ocean; racial analysis, comments; distribution.
- Mottley, Charles McC. 1936
The hooked snout in the salmonidae. Progr. Repts. Pac. Biol. Sta. & Pac. No. 30, Fish. Expt. Sta., 9-10.
spring; sexual dimorphism.
- Munro, F.A., and Clemens, W.A. 1937
The American merganser in British Columbia and its relation to the fish population. Bull. Biol. Bd. Can., No. 55, 1-50, 10 figs., 5 tables.
O. nerka, sockeye; O. nerka kennerlyi, kokanee; Brit. Col.; food & feeding habits.
- Murphy, Garth I. 1952
An analysis of silver salmon counts at Benbow Dam, South Fork of Eel River, California. Cal. Fish & Game, 38(1): 105-112, 3 tables.
O. kisutch, silver; distribution; Benbow Dam, Eel R., Calif.; time species migrates upstream; age at time of return; distance travelled upstream; spawning period; time of seaward migration; time young spend in freshwater; movements in ocean.
- Murphy, Garth I., and Shapovalov, Leo 1951
A preliminary analysis of Northern California salmon and steelhead runs. Cal. Fish & Game, 37(4): 497-507, fig. 182, 4 tables.
O. tshawytscha, king; O. kisutch, silver; comparisons; distribution; Eel R., Mad R., Klamath R., Shasta R., Calif.; time species migrates upstream; type of stream chosen; behavior of fry & fingerlings; time of seaward migration; time young spend in freshwater; movements in ocean.
- Nakai, Zinziro, and Honjo, Koji 1954
A preliminary report on surveys of plankton and salmon stomach contents from the N. Pac., 1952. Spec. Pub. Tokai Reg. Fish. Res. Lab., No. 3, 6-12, 2 figs. Japanese with English abstract.
O. keta, chum; O. gorbuscha, pink; food & feeding habits, ocean; Aleutian Islands.
- Neave, Ferris 1939
Salmon Angling Records from Cowichan Bay. Progr. Rept. Biol. Stas. Nanaimo & Prince Rupert, Fish. Res. Bd. Can., No. 42, 22-24.

- Neave, Ferris (cont.) 1939
- spring; coho; Cowichan Bay, B.C.; catch records; size at time of return.
- Neave, Ferris 1941a
- Cowichan cohoes in the commercial catch. Progr. Rept. Biol. Stas. Nanaimo & Prince Rupert, Fish. Res. Bd. Can., No. 49, 6-7.
- Coho; Brit. Col.; marking & recapture data.
- Neave, Ferris 1941b
- Return of marked cohoes to the Cowichan River 1940. Progr. Rept. Biol. Stas. Nanaimo & Prince Rupert, Fish. Res. Bd. Can., No. 47, 19-20.
- coho; Cowichan River, B.C.; marking & recapture data; home stream theory.
- Neave, Ferris 1943
- Diurnal fluctuations in the upstream migration of coho and spring salmon. J. Fish. Res. Bd. Can., 6: 158-163, 1 fig., 1 table.
- O. tschawytscha (sic), spring; O. kisutch, coho; Cowichan R., Vancouver Is.; time species migrates upstream; spawning period; dominant species.
- Neave, Ferris 1947
- Natural propagation of chum salmon in a coastal stream. Progr. Rept. Pacific Coast Stas., Fish. Res. Bd. Can., No. 70, 20-21.
- coho; chum; pink; Nile Cr., B.C.; counts of migrant adults; egg counts; time of seaward migration.
- Neave, Ferris 1948
- Fecundity and mortality in Pacific salmon. Trans. Roy. Soc. Can., Ser. 3, 42(sect. 5): 97-105, 2 tables.
- O. tshawytscha, spring; O. gorbuscha, pink; O. keta, chum; O. kisutch, coho; O. nerka, sockeye; distribution; time young spend in freshwater; time of seaward migration; age at time of return; effects of environmental change.
- Neave, Ferris 1949
- Game fish populations of the Cowichan River. Bull. Fish. Res. Bd. Can., No. 84, 32 pp., 9 figs.
- O. tschawytscha (sic), spring; O. kisutch, coho; O. gorbuscha, pink; O. keta, chum; O. nerka, sockeye; Kokanee; Cowichan L., Cowichan R.; age at time of return; time species returns from ocean to stream mouth; spawning period; type of stream chosen; time young spend in freshwater; distribution; size at time of return.
- Neave, Ferris 1951
- Observations on troll-caught salmon of the west coast of Vancouver Island, 1949. Bull. 2, Pacific Marine Fisheries Comm., 93-101; 2 figs., 9 tables.
- chinook; silver; Vancouver Is.; counts & measurements; catch records; age at time of return from scale studies; time young spend in freshwater; tagging & recapture data on migration routes.
- Neave, Ferris 1953
- Principles affecting the size of pink and chum salmon populations in British Columbia. J. Fish. Res. Bd. Can., 9: 453-491, 9 figs., 13 tables.
- O. gorbuscha, pink; O. keta, chum; time species migrates upstream;

- Neave, Ferris (cont.) 1953
type of stream chosen; distance travelled upstream; spawning period; time eggs hatch; time of seaward migration; sex ratios; age at time of return; egg counts; movements in ocean (young).
- Neave, Ferris 1955
Notes on the seaward migration of pink and chum salmon fry. J. Fish Res. Bd. Can., 12: 389-374, 1 fig.
O. gorbuscha, pink; O. keta, chum; Charlotte & Vancouver Is.; behavior of fry & fingerlings (migrants).
- Neave, Ferris, Hunter, J.G., and Wickett, W.P. 1953
The 1952-54 pink salmon cycle in the Queen Charlotte Islands. Progr. Rept. Pac. Coast Stas. Fish. Res. Bd. Can., No. 97, 9-10.
O. keta, chum; Johnstone Strait, B.C.; tagging & recapture data; age at time of return; length at time of return.
- Neave, Ferris, and Pritchard, A.L. 1942
Recoveries of Cowichan River coho salmon from the year 1938 brood year, emphasize the value of marking experiments. Progr. Rept. Pac. Coast Stas., Fish. Res. Bd. Can., No. 51, 3-7.
coho; Cowichan R., B.C.; marking & recapture data; movements in ocean; distribution; home stream theory; age at time of return; time young spend in freshwater.
- Neave, Ferris, and Wickett, W.P. 1953
Factors affecting the freshwater development of Pacific salmon in British Columbia. Proc. Seventh Pac. Sci. Cong., 1949, 4: 548-556, 4 figs.
O. nerka, sockeye; O. kisutch, coho; O. keta, chum; O. gorbuscha, pink; O. tschawytscha (sic), spring; Brit. Col.; time young spend in freshwater; type of stream chosen.
- Needham, Paul R., Hanson, Harry A., and Parker, Lewis P. 1943
Supplementary report on investigations of fish-salvage problems in relation to Shasta Dam. Spec. Sci. Rept., U.S. Fish & Wildlife Service, No. 26, 1-50, 17 tables, 2 maps.
O. tschawytscha (sic), chinook; Sacramento R.; counts of migrant adults; time species migrates upstream; transplanting of runs; time of seaward migration; size of species at time of seaward migration.
- Needham, Paul R., Smith, Osgood R., and Hanson, Harry A. 1941
Salmon salvage problems in relation to Shasta Dam, California, and notes on the biology of the Sacramento River salmon. Trans. Amer. Fish. Soc. 70th Ann. Meeting for 1940, 55-69, 2 figs., 4 tables.
O. tschawytscha (sic), chinook, quinnat; Sacramento R., Calif.; time species migrates upstream; size at time of return; counts of migrant adults; racial analysis, comments; time of seaward migration; time young spend in freshwater; spawning period.

- Nelson, Philip R., and Abegglen, Carl E. 1955
Survival and spawning of gill-net-marked red salmon. U.S. Fish & Wildlife Service, Res. Rept. 40, 1-19.
red; Karluk L., Alaska; figured.
- Newcomb, Hugh Ross 1948
Umpqua River study continues, Bull. Ore. State Game Comm., 5(9): 1,4,7,8.
chinook; silver; Umpqua R., Ore.; counts; tagging & recapture data; time of seaward migration.
- Newcomb, Hugh Ross, and Matheson, Leonard M. 1946
The Umpqua River study, Bull. Ore. State Game Comm., 1(9): 1,7,8.
chinook; silver; Umpqua R., Ore.; catch records; tagging & recapture data on rate of migration; counts of migrant adults.
- Ney, Phyllis W., Deas, Catherine P., and Tarr, H.L.A. 1950
Amino acid composition of fishery products (II). J. Fish. Res. Bd. Can., 7:563-566, 1 table.
chum; pink; biochemical: amino acids.
- Nichols, John Treadwell 1908
A small collection of Alaska fishes. Proc. Biol. Soc. Wash., 21: 171-174.
O. gorbuscha, humpback; O. kisutch, coho; O. nerka, sockeye; Alaska; distribution.
- Nielson, Reed S. 1950
Survey of the Columbia River and its tributaries, Part V. Spec. Sci. Repts., Fish. U.S. Fish & Wildlife Service, No. 38, 1-41, 6 figs., tables.
chinook; distribution.
- Nishida, Hideo 1953a
The cyto-histological observations on the gland cell of the branchial epidermis with the comparison of two types of Oncorhynchus masou, land-locked and sea-run form. Sci. Rept. Hokkaido Fish Hatch., 8(1-2): 33-38, 3 figs., 3 plates. Japanese with English abstract.
O. masou "yamabe", land-locked; O. masou "masu", sea-run form, called "ginke-yamabe" before migrating seaward; Chitose Fish Hatch., Japan; anatomy; histology.
- Nishida, Hideo 1953b
Histological and cytological studies on the hatch of salmon, Oncorhynchus keta (I) On the hatching gland, mucous, cell, and softening of egg membrane. Sci. Rept. Hokkaido Fish Hatch., 8(1-2): 63-70, 5 figs. Japanese with English summary.
O. keta; Japan; anatomy & histology.
- Nishida, Hideo 1954
Occurrence of remarkable glands in the oral cavity epidermis of adult salmon, Oncorhynchus keta. Sci. Repts. Hokkaido Fish Hatchery, 9(1-2): 147-150, 3 figs. Japanese with English abstract.
Not abstracted.

- Nishida, Hideo 1955 Morphological and histochemical studies on the blood cells finding in the yolk of salmon embryo. Sci. Repts. Hokkaido Fish Hatchery. 10(1-2): 45-52, 2 figs., 12 plates. Japanese with English abstract and headings.
- O. keta; Hokkaido, Japan; histology, blood cells.
- Nishino, Kazuhiko 1953 Bacteriological study on disease of salmon and trout rearing for maturity (I). Sci. Repts. Hokkaido Fish Hatch., 8(1-2): 47-58, 7 tables. Japanese with English abstract.
- O. masou; O. gorbuscha; O. keta; Hokkaido, Japan; parasites, bacteria.
- Nomura, Minoru 1953 On the taxonomic characters in the mouth cavity of salmonoid fishes. Jap. J. Ichthyology, 2(6): 261-270, 3 figs., 3 plates. Japanese with English abstract.
- O. nerka, Himenasu; O. rhodurus, biwamasu; O. gorbuscha, karafuto masu; O. keta, sake; figured; comparisons; osteology.
- Novisoff, Henry 1912 Salmon fishing in Russia. Pacific Fisherman, 10(7): 20.
- tschawytsche, king; gorbuscha, sockeye; silver; Russia; time species migrates upstream; size at time of return.
- Ohno, Isokichi 1954 found in the waters of Hokkaido. Proc. Fifth Pac. Sci. Cong., 1953, 5: 3785-3786.
- O. masou, masu, cherry; Hokkaido, Japan; distribution; time species migrates upstream; color; spawning period; time eggs hatch (fry emerge from gravel); time young spend in freshwater; post-spawning behavior (live to spawn another season or two, landlocked forms.)
- Okada, Shun S. 1954 On the change of shape in the blastodisc of the unfertilized egg of dog salmon, Oncorhynchus keta (Walbaum) activated by water. Sci. Repts. Hokkaido Fish Hatchery, 9(1-2): 127-129, 15 figs., Japanese with English abstract.
- Not abstracted.
- O'Malley, Henry 1904 The blueback salmon of Baker Lake, Washington. Pacific Fisherman, 2(8): 17-18.
- quinnat; blueback; Baker L., Wash.; time species migrates upstream; color; sexual dimorphism; type of stream chosen; spawning behavior.
- O'Malley, Henry 1917 The distribution of fish and fish eggs during the fiscal year 1916. Rept. Comm'r Fish for 1916, U.S. Bur. Fish., Doc. No. 837, 111 pp.
- O. gorbuscha, humpback; intro. & acclim.: Wash., D.C.; Maine.
- 0--
- Ohno, Isokichi 1954 Life-history of Oncorhynchus masou

O'Malley, Henry	1919	O'Malley, Henry	1924
The distribution of fish and fish eggs during the fiscal year 1917. Rept. Comm'er Fish. for 1917, U.S. Bur. Fish. Doc. No. 846, 1-99.		Annual report of the commissioner of fisheries, 1924 Rept. Comm'er Fish. for 1924, U.S. Bur. Fish. Doc. No. 966, 1-40.	
<u>O. tschawytscha</u> (sic), chinook, king, quinnat; <u>O. gorbuscha</u> , humpback; intro. & acclim.: Kentucky, Maine.		chinook; sockeye; intro. & acclim.: Maryland, Montana, Chile, Netherlands; marking & recapture data, migration routes, Alaska Peninsula.	
O'Malley, Henry	1920a	O'Malley, Henry	1926
Artificial propagation of the salmon of the Pacific Coast Rept. Comm'er Fish., U.S., for 1919, Bur. Fish., Doc. No. 879, 1-32, 9 plates, 11 figs.		Report of the commissioner of fisheries. Rept. Comm'er Fish. for 1926, U.S. Bur. Fish. Doc. No. 1002, i-xlvi.	
<u>O. tschawytscha</u> (sic), chinook, Sacramento, spring, Columbia, king, tyee, quinnat; <u>O. nerka</u> , blueback, sockeye, redfish; <u>O. gorbuscha</u> , humpback, pink; <u>O. kisutch</u> , silver, coho; <u>O. keta</u> , chum, dog; figured; description; color; size at time of return; range; distance travelled upstream; sexual dimorphism; time species migrates upstream; spawning period; nature of spawning site; intro. & acclim.; type of stream chosen; time young spend in freshwater; age at time of return.		chinook; intro. & acclim.: Hawaii.	
		O'Malley, Henry	1933
		Sport fishing in Alaska. U.S. Dept. Commerce, Bur. Fish., Fish. Circ. 13, 1-18, 12 figs.	
		chinook, king; silver, coho; Alaska; species figured; description; color.	
		O'Malley, Henry, and Rich, Willis H.	1911
O'Malley, Henry	1920b	Migration of adult sockeye salmon in Puget. Rept. Comm'er Fish. for 1918. Prov. Brit. Col., 58-89, 29 tables.	
The distribution of fish and fish eggs during the fiscal year 1918. Rept. Comm'er Fish. for 1918, U.S. Bur. Fish., Doc. No. 863, 1-82.		sockeye; Puget Sound, Fraser R.; tagging & recapture data; migration routes.	
<u>O. tschawytscha</u> (sic), chinook, king, quinnat; <u>O. gorbuscha</u> , humpback; intro. & acclim.: Maine, Japan.		O'Malley, Henry, and Rich, Willis H.	1920
O'Malley, Henry	1922	Migration of adult salmon in Puget Sound and Fraser River, Rept. Comm'er Fish. for 1918, U.S. Bur. Fish. Doc. No. 873, 1-28, 29 tables, 1 plate.	
Annual report of the commissioner of fisheries. Rept. Comm'er Fish. for 1922, U.S. Bur. Fish. Doc. No. 913, 1-50.		sockeye; Puget Sound, Fraser R.; marking & recapture data, migration routes; racial analysis, comments only, p. 16.	
humpback; intro. & acclim.: Maine.			

- | | | | |
|--|-------|---|-------|
| Oregon Fish Commission | 1931 | Oshima, Masamitsu | 1934 |
| <p>A brief report on cooperative experiments in marking young chinook salmon on the Columbia River. Biennial Rept. Oregon Fish Comm., 1931, 31-31.</p> <p>chinook, spring; Columbia R.; marking & recapture data; age at time of return; home stream theory.</p> | | <p>Life history and distribution of the freshwater salmon found in the waters of Japan. Proc. Fifth Pac. Sci. Cong., 1933, 5: 3751-3773, 9 plates.</p> <p><u>O. masou</u>, cherry; <u>O. rhodorus</u>, biwa; <u>O. formosanus</u>, biwa-masu; <u>O. kawamurae</u>, kuni-masu; <u>O. adonis</u>; <u>O. gorbusha</u>; <u>O. keta</u>; <u>O. tschawytscha</u> (sic); <u>O. kisutch</u>; <u>O. ishikawae</u>; <u>O. macrostomus</u>, amenouwo, amago, enoha; Japan; synonymy; description; counts & measurements; color; figured; artificial hybridization; time young spend in freshwater; time of seaward migration; post-spawning behavior (survival after spawning of precocious males); age at time of return; distribution.</p> | |
| Oregon Fish Commission | 1941 | | |
| <p>Biennial Rept. Ore. Fish. Comm., 1-45.</p> <p>chinook; blueback; silverside; chum, keta; Oregon; catch records.</p> | | | |
| Oregon Fish Commission | 1943 | | |
| <p>Biennial Rept. Ore. Fish. Comm., 1-55, 4 tables, 7 graphs.</p> <p>chinook; silver; chum; Oregon; catch records.</p> | | | |
| Oregon Fish Commission | 1949a | Oregon Fish Commission | 1949b |
| <p>Biennial Rept. Ore. Fish Comm., 1-36.</p> <p>chinook; blueback; silversides; chum; Oregon; counts of migrant adults; catch records.</p> | | <p>Crab larvae as food for silver salmon at sea. Fish Comm. of Oregon, Res. Briefs, 2(1): 17.</p> <p>Not abstracted.</p> | |
| Osaki, Masao | 1936 | | |
| <p>The identification of the species of <u>Oncorhynchus</u> in the east coast of Kamchatka. Bull. Jap. Soc. Sci. Fish., 4(5): 321-324, 2 tables. Japanese with English abstract.</p> <p>Not abstracted.</p> | | | |

Palmer, David D., Burrows, Roger E., 1954
Robertson, O. H., and Newman,
H. William

Further studies on the reactions of adult
blueback salmon to injected salmon and
mammalian gonadotrophins. Progressive Fish
Culturist, 16: 99-107.

O. nerka, blueback; O. tschawytscha,
listed; O. keta, chum: locality: state of
Washington; biochemistry.

Parker, Lewis P. 1943

Notes on the Pyloric Caeca of Chinook
Salmon. Copeia, 3: 190-191.

Oncorhynchus tschawytscha, Sacramento R.,
Calif.; chinook; racial analysis.

Parker, Lewis P., and 1944
Hanson, Harry A.

Experiments on transfer of adult salmon
into Deer Creek, California. Jour. of
Wildlife Management, 8: 192-198.

O. tschawytscha, chinook; distribution;
Sacramento R., Deer Cr., Calif.; time
species migrates upstream; type of
stream chosen; marking & recapture data;
spawning behavior; post-spawning behav-
ior.

Parker, Robert R., and 1951
Kirkness, Walter

Biological investigations. Annual
Report Alaska Fisheries Board, No. 2,
25-41.

king; silver; Southeast Alaska; tagging
& recapture data; migration routes;
time young spend in freshwater; age at
time of return; growth rates; racial
analyses - detailed data; length at time
of return.

Parker, Robert R., Kirkness, Walter, 1952
Thorson, K. N., Edson, Q. A.,
MacSpadden, M. L. and Heidman, Carl, Jr.

Biological investigations. Report,
Alaska Fisheries Board, No. 3, 20-
41.

King; sockeye; Alaska; racial analysis;
tagging & recapture data on migration
routes; distribution; counts of migrant
adults; catch records; nature of spawn-
ing site; type of stream chosen; size
at time of return.

Parker, Robert R., Kirkness, Walter, 1953
Thorson, K. N., Edson, Q. A., Huizer,
E. J.

Taku River Investigation; Report, Alaska
Fisheries Board, No. 5, 24-41.

King; pink; red; silver; chum; Taku River
Alaska; time of seaward migration; racial
analysis-comments; measurements; counts
of migrant adults; age at time of
return; catch records (gill nets, fish
wheels); tagging & recapture data.

Parkhurst, Zell E. 1950a

Survey of the Columbia River and its
tributaries, Part 6. Special Scientific
Report, Fisheries, U.S. Fish & Wildlife
Service, No. 39, 1-58.

Chinook; silver; land-locked blueback;
distribution

Parkhurst, Zell E. 1950b

Survey of the Columbia River and its
tributaries. Part VII. Special Scientific
Report, Fisheries, U. S. Fish & Wildlife
Service, No. 40, 1-95.

Chinook; blueback; time species migrates
upstream; little red fish; distribution.

Parkhurst, Zell E. 1950c

Survey of the Columbia River and its
tributaries, part 8. Special Scientific
Reports, Fisheries, U. S. Fish & Wildlife
Service, No. 57, 1-19.

Chinook; distribution.

Parkhurst, Zell L., Bryant, 1950
Floyd G., and Nielson, Reed S.

Survey of Columbia River and its tributaries, Part III. Special Scientific Report, Fisheries, U. S. Fish & Wildlife Service, No. 36, 1-103.

Chum, silver; chinook; Columbia Riv.; distribution; time species migrates upstream.

Pentegov, B. P., Mentov, Iu. N., 1928
and Kurvaev, E. F.

(Physico-chemical characteristic of breeding migration fast of keta salmon). (In Russian with English summary) Bull. Pac. Ocean Sci. Fish Res. Sta., Vladivostok, 2 (1): 3-64.

Not abstracted.

Popov, A. M. 1933

Fishes of Avatcha Bay on the Southern Coast of Kamtchatka. Copeia, 2: 59-67.

Oncorhynchus kisutch; Q. keta; Q. nerka; Q. gorbuscha; Q. tshawytscha; Kamchatka; time species migrates upstream.

Potter, Gilbert D., and 1954
Hoar, William S.

The Presence of androgens in chum salmon (Oncorhynchus keta walbaum). Journal of the Fisheries Research Board of Canada, 11: 63-68.

Q. keta, chum; silver; British Columbia; anatomy--histology; biochemistry.

Pottinger, S. R., and 1940
Baldwin, Willis H.

The content of certain amino acids in the edible portions of fishery products. Proc. Sixth Pac. Sci. Cong., 3: 453-459.

Q. keta; chum; Q. tshawytscha, king; Q. gorbuscha, pink; Q. kisutch, silver; Q. nerka, sockeye; biochemistry.

Powers, Edwin B. 1939

Chemical factors affecting the migratory movements of the Pacific salmon. In: The migration and conservation of salmon, Amer. Assoc. for the Advancement of Science, 8: 72-85.

Q. gorbuscha, humpback; Q. nerka, red, sockeye; Q. tshawytscha, king, spring; chinook, quinnat; home stream theory; biochemistry; physiology; leaping and other migration behavior; tagging and recapture data on migration routes; distribution; introduction and acclimatization to New Zealand.

Powers, Edwin B. 1941

Physico-chemical behaviors of waters as factors in the "homing" of the salmon; Ecology, 22:1-16.

Red, coho, humpback, dog; range; racial analysis, comments; type of stream chosen; movements in ocean; homing instinct.

Pressey, Richard T. 1953

The sport fishery for salmon on Puget Sound. Washington Department of Fisheries, Fisheries Research Papers. 1, (5): 33-48.

Chinook; silver; pink; chum; Puget Sound; catch records; age at time of return; length at time of return.

Prince, Edward E. 1916a

The fish and fisheries of New Zealand. Trans. Amer. Fish. Soc., 45:117-123.

Quinnat; intro. & acclim.: New Zealand.

Prince, Edward E. 1916b

On the red color of the flesh in the salmon and trouts. Trans. Amer. Fish. Soc. 46: 50-61.

Common names; theories regarding flesh color.

- Pritchard, A. L. 1930
Pacific Salmon Migration: The Tagging of the Pink Salmon and the Chum Salmon in British Columbia in 1928. Bull. Biol. Bd. Can., 14: 1-17.
Oncorhynchus gorbuscha, pink; O. keta, chum; O. tschawytscha, spring; O. kisutch, coho; locality: Johnson & Broughton Straits, B. C.; tagging & recapture data; migration routes.
- Pritchard, A. L. 1931a
A Report of the Pink Salmon Investigation in British Columbia. Progr. Rep. Biol. Stas. Nanaimo & Prince Rupert. Biol. Bd. of Canada, 9: 509.
Pink; McClinton Creek, B.C.; time species migrates upstream; egg counts; time of seaward migration.
- Pritchard, A. L. 1931b
Summary of the Results of Tagging of Spring Salmon in 1929 and 1930. Progr. Reg. Biol. Stas. Nanaimo & Prince Rupert Biol. Bd. of Can.
Spring; Brit. Col; tagging & recapture data, migration routes.
- Pritchard, A. L. 1931c
The Tagging of Coho Salmon in British Columbia During the Years 1929 and 1930. Progr. Rep. Biol. Stas. Nanaimo & Prince Rupert. Biol. Bd. of Can.
Coho; Brit. Col; tagging & recapture data, migration routes.
- Pritchard, A. L. 1931d
The Tagging of Pink & Chum Salmon in British Columbia in 1929. Progr. Rep. Biol. Stas. Nanaimo & Prince Rupert. Biol. Bd. of Can., 9: 12-14.
- Pink, chum; Brit. Col.; tagging & recapture data, migration routes.
- Pritchard, A. L. 1932a
Pacific Salmon Migration: The Tagging of the Pink Salmon and the Chum Salmon in British Columbia in 1929 and 1930. Bull. Biol. Bd. Can., 31: 1-16.
Oncorhynchus gorbuscha, pink; O. keta, chum; Vancouver Island; age at time of return; weight at time of return; tagging & recovery data; migration routes; separation of runs.
- Pritchard, A. L. 1932b
Relation of tagging programs to the conservation of Pacific salmon off the coast of British Columbia. Trans Amer. Fish. Soc., 62: 88-93.
Oncorhynchus tschawytscha, spring; C. kisutch, coho; O. gorbuscha, pink; C. keta, chum; O. nerka, sockeye; tagging & recapture data, migration routes.
- Pritchard, A. L. 1932c
Report on investigation of the natural run of the pink salmon (C. gorbuscha--Walbaum) during the year 1931. Annual Report, Biol. Bd. of Can. for 1931, p. 78.
Coho; chum; O. gorbuscha, pink; McClinton Creek, Massett inlet, B.C.; counts of migrant adults; time species returns from ocean to stream mouth.
- Pritchard, A. L. 1932d
The Returns of Marked Pink Salmon in 1932, Progr. Rep. Biol. Stas. Nanaimo & Prince Rupert. Biol. Bd. of Can., 15: 10-11.
Pink; N. Brit. Col.; marking & recapture data; age at time of return; home stream theory.
- Pritchard, A. L. 1934a
The Interpretation of the Recoveries of Marked Pink Salmon in 1933. Progr. Rep. Biol. Stas. Nanaimo & Prince Rupert. Biol. Bd. of Can., 20: 3-5.
Pink; Brit. Col; home stream theory.

- Pritchard, A. L. 1934b Oncorhynchus gorbuscha, pink; McClinton Cr., B.C.; type of stream chosen; size at time of seaward migration; distance traveled upstream; time species returns from ocean to stream mouth.
- Pacific Salmon Migration: The Tagging of the Coho Salmon in British Columbia in 1929 and 1930. Bull. Biol. Bd. Can., 40: 1-24.
- Oncorhynchus kisutch, silver; Northern Brit. Col.; tagging and recapture data; distribution.
- Pritchard, A. L. 1934c Pacific Salmon Migration: The Tagging of the Spring Salmon in British Columbia in 1929 and 1930. Bull. Biol. Bd. Can., 41: 1-31.
- Oncorhynchus tshawytscha, spring; tagging and recapture data; distribution; Racial analysis: comments; migration routes.
- Pritchard, A. L. 1934d The Recovery of Marked Pink Salmon in 1934. Prog. Rep. Biol. Stas. Nanaimo & Prince Rupert. Biol. Bd. of Can., 22: 17-18.
- Pink; Br. Col.; McClinton Creek, etc.; marking & recapture data.
- Pritchard, A. L. 1934e Tagging programmes and their relation to the conservation of fish, with special reference to Pacific salmon in British Columbia waters. Proc. Fifth Sci. Cong., 1933, 5: 3733-3740.
- O. tshawytscha, spring; O. kisutch, coho; O. gorbuscha, pink; O. keta, chum; Brit. Col.; tagging & recapture data--migration routes; type of stream chosen.
- Pritchard, A. L. 1936a Factors Influencing the Upstream Spawning Migration of the Pink Salmon, Oncorhynchus gorbuscha. J. Biol. Bd. Can., 2: 383-389.
- Pritchard, A. L. 1936b Facts concerning the coho Salmon (Oncorhynchus kisutch) in the Commercial Catches of British Columbia as Determined from their Scales. Prog. Rep. Biol. Stas. Nanaimo & Prince Rupert. Biol. Bd. of Can., 29: 16-20.
- Oncorhynchus kisutch, coho, blueback; Brit. Col.; time of seaward migration; time young spend in freshwater; racial analysis.
- Pritchard, A. L. 1936c Stomach content analysis of fishes preying upon the young of Pacific Salmon during the fry migration at McClinton Creek, Massett Inlet, British Columbia. The Canad. Field-Nat., 50: 104-105.
- O. gorbuscha, pink; O. kisutch, coho; distribution; locality: McClinton Cr., Massett Inlet, B. C.; time of seaward migration; length at time of seaward migration; food and feeding habits.
- Pritchard, A. L. 1937a The Findings of the British Columbia Pink Salmon Investigation, Part I - Introduction & General Observations. Prog. Biol. Stas. Nanaimo & Prince Rupert. Biol. Bd. of Can., 33: 3-6.
- Pink; McClinton Creek, B.C.; time species migrates upstream; sexual dimorphism; time of seaward migration.
- Pritchard, A. L. 1937b The Findings of the British Columbia Pink Salmon Investigation, Part II - Marking Experiments of Natural Propagation. Prog. Rep. Biol. Stas. Nanaimo & Prince Rupert. Biol. Bd. of Can., 34: 3-12.

- Pink; McClinton Creek, B.C.; home stream theory; age at time of return; marking & recapture data, migration route.
- Pritchard, A. L. 1937c Pritchard, A. L. 1939b
- Variation in the time of Run, Sex Proportions, Size and Egg Content of Adult Pink Salmon (Oncorhynchus gorbuscha) at McClinton Creek, Massett Inlet, B.C. J. Biol. Bd. Can., 3: 402-416.
- Oncorhynchus gorbuscha, pink; O. nerka, sockeye; McClinton Cr., B.C.; sex ratios; sexual dimorphism; time species migrates upstream; size at time of return.
- Pritchard, A. L. 1938a Pritchard, A. L. 1940a
- The findings of the British Columbia pink salmon investigation. Part III - attempts to build an "off" year run in Masset Inlet. Fisheries Research Board of Canada. Prog. Reps. of Pac. Biol. Sta. & Pac. Fish. Exp. Sta., 35: 14-17
- Pink; Masset Inlet, B. C.; age at time of return; intro. & acclim.: of odd year run to Masset Inlet, B.C.
- The Age of Spring Salmon in the Commercial Catches in British Columbia Prog. Rep. Biol. Stas. Nanaimo & Prince Rupert. Fish. Res. Bd. of Can., 44: 9-11.
- Spring; Brit. Col.; age at time of return (age groups).
- Pritchard, A. L. 1940b
- Studies on the age of the coho salmon (Oncorhynchus kisutch) and the spring salmon (Oncorhynchus tshawytscha) in British Columbia. Trans. Roy. Soc. Can., (3), 34: 99-120.
- O. kisutch, coho; O. tshawytscha (sic), spring, king, chinook; O. gorbuscha, pink; O. keta, chum; blueback; distribution; time young spend in freshwater; time species migrates upstream; type of stream chosen; nature of spawning site; time eggs hatch; age at time of return; age group ratios; behavior of fry; marking & recapture data; home stream theory.
- Pritchard, A. L. 1940c
- Transplantation of Pink Salmon (Oncorhynchus gorbuscha) into Masset Inlet, British Columbia, in the Barren Years. J. Fish. Res. Bd. Can., 4: 141-150.
- A study of the natural propagation of the pink salmon, O. gorbuscha, in British Columbia. Trans. Amer. Fish. Soc., 69: 237-239.
- Oncorhynchus gorbuscha, pink; Masset Inlet; transplantation of fry; marking & recapture data.
- Pritchard, A. L. 1939a Pritchard, A. L. 1940c
- Homing Tendency and Age at Maturity of Pink Salmon Oncorhynchus gorbuscha in British Columbia. J. Fish. Res. Bd. Can., 4: 233-251.
- O. gorbuscha, pink; McClinton Creek, B.C.; weir counts.

- Pritchard, A. L. 1941 The Recovery of Marked Masset Inlet Pink Salmon During the Season of 1940. Prog. Rep. Biol. Stas. Nanaimo & Prince Rupert. Fish. Res. Bd. of Can., 48: 13-17.
- Pink; Masset Inlet, B.C.; time species return to stream mouth; marking & recapture data; home stream theory.
- Pritchard, A. L. 1943a The Age of Chum Salmon Taken in the Commercial Catches in British Columbia. Prog. Rep. of the Pac. Coast Stas. Fish. Res. Bd. of Can., 54: 9-11.
- Oncorhynchus keta, chum; Brit. Col.; age at time of return; size at time of seaward migration; time young spend in freshwater.
- Pritchard, A. L. 1943b Results of the 1942 Pink Salmon Marking at Morrison Creek, Courtenay, B.C. Prog. Rep. of the Pac. Coast Stas. Fish. Res. Bd. of Can., 57: 8-10.
- Pink; Morrison Creek, Courtenay, B.C.; marking & recapture data; home stream theory; migration routes; age at time of return.
- Pritchard, A. L. 1943c Salmon Angling in Cowichan Bay, Vancouver Island. Prog. Rep. of the Pac. Coast Stas. Fish. Res. Bd. of Can., 54: 6-8.
- Coho, spring; Cowichan Bay, B.C.; catch records; time species migrates upstream.
- Pritchard, A. L. 1944a Physical Characteristics and Behavior of Pink Salmon Fry at McClinton Creek, B.C. J. Fish. Res. Bd. Can., 6: 217-227.
- Oncorhynchus gorbuscha, pink; O. masu; McClinton Creek, B.C.; marking & recovery data; time eggs hatch; behavior of fry; counts and measurements (of fry); color (fry); time of seaward migration.
- Pritchard, A.L. 1944c Return of Two Pink Salmon (Oncorhynchus gorbuscha) to the Natal Stream from Distant Places in the Sea. Copeia, 1944: 80-82.
- Oncorhynchus gorbuscha, pink; Brit. Col.; time species returns from ocean to stream mouth; time of seaward migration; movements in ocean; marking and recapture data; migration routes; home stream theory.
- Pritchard, A.L. 1944d Sockeye Salmon Tagging off the Skeena River in 1944. Prog. Rep. of the Pac. Coast Stas., Fish. Res. Bd. of Can., 61: 8-12.
- Sockeye; Skeena River, B.C.; tagging & recapture data; distribution.
- Pritchard, A.L. 1945a Counts of Gill Rakers and Pyloric Caeca in Pink Salmon. J. Fish Res. Bd. Can., 6: 392-398.
- Oncorhynchus gorbuscha, pink; O. tshawytscha, king; O. nerka, sockeye; O. keta; Brit. Col.; racial analysis; counts & measurements.
- Pritchard, A.L. 1945b Observations on the Upstream Migration of the Coho Salmon Spawning Runs in the Cowichan River. Prog. Rep. of the Pac. Coast Stas. Fish. Res. Bd. of Can., 62: 14-16.
- Coho; Cowichan River, B.C.; time species migrates upstream.

- Pritchard, A.L. 1945c
Sockeye Salmon Tagging off the Skeena River in 1945. Prog. Rep. of the Pac. Coast Sas. Fish. Res. Bd. of Can., 65: 77-70.
- Sockeye, Spring, coho; Skeena River, B.C.; tagging & recapture data; distribution.
- Pritchard, A.L. 1947
Sockeye Salmon Tagging off the Skeena River in 1946. Prog. Rep. of the Pac. Coast Stas; Fish. Res. Bd. of Can., 70: 13-16
- Sockeye; Skeena River, B.C.: tagging & recapture data, on migration routes.
- Pritchard, A.L. 1948a
A discussion of the mortality in pink salmon (Oncorhynchus gorbuscha) during their period of marine life. Trans. Roy. Soc. Can., (3) 42: 125-133.
- O. gorbuscha, pink; distribution; age at time of return; home stream theory; movements in ocean.
- Pritchard, A.L. 1948b
Efficiency of Natural Propagation of the Pink Salmon (Oncorhynchus gorbuscha) in McClinton Creek, Masset Inlet, B.C. J Fish. Res. Bd. Can., 7: 224-236.
- Oncorhynchus gorbuscha, pink; McClinton Creek, Masset Inlet, B.C.; sex ratios, adults; egg counts; weight at time of seaward migration.
- Pritchard, A.L. 1948c
Sockeye Salmon Tagging off the Skeena River in 1947. Prog. Rep. Pac. Coast Stas., Fish. Res. Bd. of Can., 75: 40-42.
- Sockeye; Skeena River, B.C.; tagging & recapture data, migration routes; segregation of populations.
- Pritchard, A.L. 1949
Appendix IX, Report for 1948 on the Skeena River Salmon Investigation. Annual Report Fish. Res. Bd. of Can., 1948: 79-85.
- Sockeye; chum; pink; coho; spring; Skeena River, B.C.; type of stream chosen; catch records.
- Pritchard, A.L., and Brett, J.R. 1945
A Sockeye Salmon Tagging Experiment in Lakelse Lake. Prog. Rep. of the Pac. Coast Stas. Fish. Res. Bd. of Can., 62: 4-6.
- Sockeye; Lakelse Lake, B.C.; tagging & recapture data (movements within the lake system).
- Pritchard, A. L., and Cameron, W.M. 1940
Observations on the Sockeye Salmon Run at Lakelse Lake (Skeena River) in the Year 1939. Prog. Rep. Biol. Stas. Nanaimo & Prince Rupert. Fish. Res. Bd. of Can., 43: 14-16.
- Sockeye; Lakelse Lake (Skeena River), B.C. description; time species migrates upstream; egg counts; spawning period.
- Pritchard, A.L., and DeLacy, Allan C. 1944a
Migration of Pink Salmon (Oncorhynchus gorbuscha) in Southern British Columbia and Washington in 1943. Bull. Fish. Res. Bd. Can., 66: 1-23.
- Oncorhynchus gorbuscha, pink; So. Brit. Col. & Wash.; time species returns from ocean to stream mouth; time species migrates upstream; tagging & recapture data; migration routes.

- Pritchard, A.L., and DeLacy, Allan C. 1944b
Pink Salmon Tagging Experiments During 1943 in Southern British Columbia & the Puget Sound Area of the State of Washington. Prog. Rep. of the Pac. Coast Stas. Fish. Res. Bd. of Can., 58: 8-12.
Pink; Southern B.C. & Puget Sound, Wash.; tagging & recapture data; distribution.
- Pritchard, A. L., and Neave, Ferris 1942
What Did the Tagging of Coho Salmon at Skutz Falls, Cowichan River, Reveal? Prog. Rep. of the Pac. Coast Stas. Fish. Res. Bd. of Can., 51: 8-11.
Coho; Skutz Falls, B.C.; tagging & recapture data; spawning period; migration behavior: leaping habit.
- Pritchard, A.L., and Tester, Albert L. 1939
The Food of Spring Salmon in British Columbia Waters During 1939. Prog. Rep. Biol. Stas. Nanaimo & Prince Rupert, Fish. Res. Bd. of Can., 42: 3-7.
Spring; Brit. Col.; food & feeding habits.
- Pritchard, A.L., and Tester, Albert L. 1941
The Food of Spring Salmon in British Columbia Waters in 1940. Prog. Rep. Biol. Stas. Nanaimo & Prince Rupert, Fish. Res. Bd. of Can., 47: 14-18.
Spring; Brit. Col.; food & feeding habits.
- Pritchard, A.L. and Tester, Albert L. 1942
The Food of Spring Salmon in British Columbia Waters in 1941. Prog. Rep. of the Pac. Coast Stas. Fish. Res. Bd. of Can., 53: 3-6.
Spring; Brit. Col.; food & feeding habits.
- Pritchard, A.L., and Tester, Albert L. 1943
Notes on the Food of Coho Salmon in British Columbia waters. Prog. Rep. of the Pac. Coast Stas. Fish. Res. Bd. of Can., 55: 10-11.
Coho; Brit. Col.; food & feeding habits.
- Pritchard, A.L., and Tester, Albert L. 1944
Food of Spring and Coho Salmon in British Columbia. Bull. Fish. Res. Bd. Can., 65: 1-23.
Spring; coho; Brit. Col.; food & Feeding habits; figured.
- Pugsley, L.I. 1942
Vitamin A and D Potencies of Oil from Body, Liver and Intestines of Pilchard, Herring, Salmon and Tullibee. J. Fish. Res. Bd. Can., 5: 428-437.
Oncorhynchus nerka, sockeye;
O. gorbuscha, pink; O. keta, chum;
O. tshawytscha, spring; biochemical.
- R--
- Radcliffe, Lewis 1920
Fishery industries of the United States Rep. Commissioner Fish. for 1918, U.S. Bureau Fish. Doc., 875: 1-167.
Chinook; silver, humpback, blueback, sockeye, chum; Wash.; Ore.; Calif.; distribution (pp. 94); size of species at time of return; time species migrates upstream.
- Radcliffe, Lewis 1921
Fishery industries of the United States Rep. Comm. Fish. 1921, U.S. Bur. Fish. Doc., 908: 1-187.
Humpback; intro. & acclim.; Maine.

- Radcliffe, Lewis 1928 Need for Racial Study of Fishes. Copeia, October-December, 1928, 169: 85-88.
- Red Salmon; Vancouver Isl.; racial analysis-comments; type of stream chosen; distance traveled upstream.
- Radovich, John, and Gibbs, Earl O. 1954 The use of a blanket net in sampling fish populations; Cal. Fish & Game, 40: 353-365.
- O. tshawytscha king; distribution.
- Rathbun, Richard 1894 Summary of the Fishery Investigations Conducted in the North Pacific Ocean and Bering Sea from July 1, 1888, to July 1, 1892, by the U.S. Fish Commission Steamer Albatross, Bull. U.S. Fish Comm., 12: 127-201.
- O. gorbuscha, humpback; O. keta, dog; O. nerka, red; silver; king; Nusagok R.; Unalaska; time species migrates upstream.
- Rathbun, Richard 1900 A review of the fisheries in the contiguous waters of the state of Washington and Brit. Col. Rep. Commr. for 1899, U.S. Comm. Fish and Fish., 253-350.
- Oncorhynchus nerka, blueback, sockeye, redfish; O. tshawytscha, quinnat, tyee, spring; O. kisutch, silver, coho; O. keta, dog; O. gorbuscha, humpback, haddo; movements in ocean (migration routes); type of stream chosen; time species migrates upstream; racial analysis--comments only; distribution; spawning period; postspawning behavior (survival after spawning); weight of species at time of return; description--flesh color, p. 283.
- Ravenel, W. de C. 1896a Report on the propagation and distribution of food fishes. Rep. Commr. for 1895, U.S. Comm. Fish and Fish., 6-72.
- Oncorhynchus tshawytscha, chinook, quinnat, silver; Klamath R.; Mad R.; McCloud R.; Calif.; time species migrates upstream; spawning period; intro. & acclim.: France, Calif., Ore.
- Ravenel, W. de C. 1896b Report on the propagation and distribution of food fishes. Rep. Commr. for 1896, U.S. Comm. Fish and Fish., 11-92.
- Quinnat; intro. & acclim.: Calif., Ore., Germany, Nicaragua, Ireland.
- Ravenel, W. de C. 1898 Report on the propagation and distribution of food fishes. Rep. Commr. for 1897, U.S. Comm. Fish and Fish., xviii-xc.
- Quinnat; intro. & acclim. : Calif., Me. Md., N.H., N. Y., Ore., Pa., Vt., Wash., France, Germany; spawning period.
- Ravenel, W. de C. 1899 Report on propagation and distribution of food fishes. Rep. Commr. for 1898, U.S. Comm. Fish and Fish., cxxi-cxxii.
- California salmon; Calif., Ore.; spawning period; intro. & acclim.: Calif., Me., Mass., N.Y., Ore., Wash., Italy, Germany, Japan, France.
- Ravenel, J. de C. 1900 Report on the propagation and distribution of food fishes. Rep. Commr. for 1899, U.S. Comm. Fish and Fish., xxxv-cxvii.
- Salmon (quinnat salmon?); Ore., Wash., Calif.; spawning period; intro. & acclim.: Calif., Ore., Wash., Vt., Va., Japan, France, New Zealand.

Ravenel, W. de C.	1901	Reagan, Albert B	1917
Report on the propagation and distribution of food fishes. Rep. Commr. for 1900, U.S. Comm. Fish and Fish., 25-118.		Archaeological notes on Western Washington and adjacent British Columbia: Proc. Calif. Acad. Sci.; 7(4): 1-31.	
Quinnat; sockeye; Wash., Ore., Calif.; spawning period; intro. & acclim.: Mo., New Zealand, France.		<u>Q. tschawytscha</u> , spring; <u>Q. nerka</u> , sockeye; <u>Q. kisutch</u> , silver; <u>Q. keta</u> , dog; <u>Q. gorbuscha</u> , humpback; fossil; La Push, Wash.	
Ravenel, W. de C.	1902	Redding, B. B.	1876
Report on the propagation and distribution of food fishes. Rep. Commr. for 1901, U.S. Comm. Fish and Fish., 21-110.		Correspondence relating to the San Joaquin River and its fishes. Rep. Commr. for 1873-74 and 1874-75, U.S. Comm. Fish and Fish., Part III, 479-483.	
Quinnat; blueback; silver; Wash., Ore., Calif.; spawning period; intro. & acclim.: Wisc., New Zealand.		California salmon; San Joaquin R.; distribution; spawning period.	
Raveret-Wattel, C.	1885a	Redding, B.B., Throckmorton, S.R., 1933 and Farwell, J.D.	
American Fish in France. Bull. U.S. Fish Comm., 5: 423.		Report of Commission of Fisheries of the State of California for the years 1870 and 1871; Cal. Fish & Game, 19: 41-45.	
California salmon, <u>Salmo quinnat</u> ; apparently spawned in Gartempe Riv., France; mention of recaptures in Aude & Herault Rivers; intro. & acclim.: France.		Salmon; distribution; Sacramento & San Joaquin R., Calif., Snake R.; time species returns from ocean to stream mouth; distance traveled upstream; spawning behavior; nature of spawning site; time eggs hatch; time young spend in freshwater.	
Raveret-Wattel, C.	1885b	Regan, C. Tate	1914
Note on the Culture of American Salmon in France. Bull. U.S. Fish Comm., 5: 1-260.		Systematic arrangement of the fishes of the family <u>Salmonidae</u> . Ann. Mag. Nat. Hist., 13 (8): 405.	
<u>Salmo quinnat</u> ; recaptures in Herault & Aude Rivers, France; intro. & acclim.: France.			
Raveret-Wattel, C., and Barrett	1883	Regan, C. Tate	1920
Reproduction of California Salmon in the Aquarium of Trocadero. Bull. U.S. Fish Comm., 3: 207-208.		The Geographical Distribution of Salmon & Trout. Salm. Trout Mag., 25-35.	
<u>Oncorhynchus quinnat</u> , California salmon; Paris, France; intro. & acclim.; hybridization.		<u>Salmo masu</u> , masu ; Lake Biwa, Japan; range; figured.	

Rich, Willis H.	1921a	Rich, Willis H.	1925a
An Instance of Adult, Sea-Run chinook Salmon Found Feeding in Fresh Water, Calif. Fish & Game, 7: 7-8.		Progress in biological inquiries, fiscal year 1924. Rep. Commr. Fish for 1924, U.S. Bur. Fish. Doc., 971: 1-46.	
Chinook; Cowlitz River, Columbia River; food & feeding habits - freshwater; stomach analyses.		Red; humpback; dog; silver; marking & recapture data, Bristol Bay; migration routes; movements in ocean (feeding grounds); racial analysis, comments, pg. 26.	
Rich, Willis H.	1921b	Rich, Willis H.	1925b
The Relative Maturity of the Chinook Salmon Taken in the Ocean Along the Pacific Coast, Calif. Fish & Game, 7: 12-22.		Progress in biological inquiries, July 1 to December 31, 1924. Rep. Commr. Fish. for 1925, U.S. Bur. Fish. Doc., 990; 37-64.	
Chinook; Columbia River, Monterey Bay; age at time of return - determined by scale studies; racial analysis - comments only.		Sockeye, blueback; intro. & acclim.: from Alaska to Herman Cr., Ore.; distribution: Okanagan R.	
Rich, Willis H.	1922	Rich, Willis H.	1926
Early history and seaward migration of chinook salmon in the Columbia and Sacramento Rivers. Bull. U.S. Bur. Fish., 37: 1-73.		Growth and Degree of Maturity of Chinook Salmon in the Ocean. Bull. U.S. Bur. Fish., 41: 15-90.	
<u>Oncorhynchus tshawytscha</u> , chinook; Columbia & Sacramento Rivers; time of seaward migration; precociously maturing male stream fry; growth rates (scale studies); sex ratios; smallest young chinook caught in ocean off Half Moon Bay, Calif.; description of precociously mature stream males; age at time of maturity; time young spend in freshwater; time fry emerge; time species migrates upstream.		Chinook; Columbia Riv.; ocean near Col. Riv.; Fort Bragg & Pt. Reyes; Monterey Bay; egg counts; age at time of return; age groups; racial analyses-comments; growth rates (from scale studies); time young spend in freshwater.	
Rich, Willis H.	1924	Rich, Willis H.	1927
Progress in biological inquiries, 1923. Rep. Commr. Fish. for 1923, U.S. Bur. Fish. Doc., 956: 1-27.		Salmon-tagging experiments in Alaska, 1924-and 1925. Bull. U.S. Bur. Fish., 42: 109-146.	
<u>C. nerka</u> , redfish; sockeye, blueback; North Pacific & Bering Sea; tagging & recapture data (migrated routes); distance traveled upstream.		Red, coho, pink, chum; southeastern Alaska; tagging & recapture data; migration routes.	
Rich, Willis H.	1935a	Rich, Willis H.	1935a
		Salmon-tagging experiments in Alaska, 1930. Bull. U.S. Bur. Fish., 47: 399-406.	
		Pink, red, chum, coho, king; southeastern Alaska; Cape Fox and Sitklan & Kanaganut Isls.; tagging & recapture data; migration routes.	

- Rich, Willis H. 1935c
 Statistical Review of the Alaska salmon fisheries, Par IV; south-eastern Alaska. Bull. U. S. Bur. Fish., 47: 437-662.
- Red, pink, king chum, coho; south-eastern Alaska; catch records; distribution; tagging & recovery data; Columbia R. kings off S.E. Alaska.
- Rich, Willis H. 1939
 Local Populations and Migration in relation to the conservation of Pacific Salmon in the Western States and Alaska. Contrib. Fish. Comm. of State of Oregon, Contrib. 1: 45-50.
- Oncorhynchus nerka, red, sockeye, blueback; O. tshawytscha, chinook; O. gorbuscha, pink; general Pacific region from Columbia R. to Alaska; Aleutian Islands; movements in ocean; marking & recapture data; migration routes, segregation; home stream theory.
- Rich, Willis H. 1940a
 Seasonal Variations in Weight of Columbia River Chinook Salmon. Copeia, 1: 34-43.
- Chinook; Columbia R.; weight at time of return.
- Rich, Willis H. 1940b
 The Future of the Columbia River Salmon Fisheries. Contrib. Fish. Commis. State of Oregon, 6: 37-47.
- Chinook, quinnat; blueback; silver; chum; locality - Columbia R., Klamath, Sacramento, Fort Bragg Rivers; catch records; egg counts.
- Rich, Willis H. 1941
 The Present State of the Columbia River Salmon Resources. Contrib. Fish. Comm. of the State of Oregon, 3: 425-430.
- Oncorhynchus tshawytscha, chinook; O. nerka, blueback, O. kisutch, silver; O. keta, chum. Columbia river; catch records; tagging & recapture data.
- Rich, Willis H. 1942
 The Salmon Runs of the Columbia River in 1938. Contrib. Fish. Comm. State of Oregon. Contrib. 7: 103-147.
- Oncorhynchus tshawytscha, chinook; O. kisutch, silver; O. nerka, blueback, O. keta, chum; Columbia R.; catch records for each species; distribution; time species migrates upstream; counts of grilse or jack salmon (chinook); counts of migrant adults.
- Rich, Willis H. 1943
 An Application of the Control Chart Method to the Analysis of Fisheries Data. Contrib. Fish. Comm. State of Oregon, 8: 1-5.
- Chinook, Columbia River; catch records.
- Rich, Willis H. 1948
 A survey of the Columbia River and its tributaries with special reference to the management of its fishery resources. U.S. Fish & Wildlife Service Spec. Sci. Rep. 51: 1-26.
- O. tshawytscha, chinook; O. nerka, blueback; O. kisutch, silver, jack, grilse; O. keta, chum; O. gorbuscha, pink; distribution; Columbia R.; age at time of return; type of stream chosen; nature of spawning site; time eggs hatch; behavior of fry; time of seaward migration; time young spend in freshwater; length of time of seaward migration; food & feeding habits; lake; home stream theory.

- Rich, Willis H., and Ball, 1931
Edward M.
Statistical Review of the Alaska Salmon fisheries, Part III; Chignik to Resurrection Bay. Bull. U.S. Bur. Fish. 46: 643, 712.
Red; pink; coho; king; Chignik to Resurrection Bay, Alaska; catch records; home stream theory.
- Rich, Willis H., and Ball, 1935
Edward M.
Statistical Review of the Alaska Salmon Fisheries Part III: Prince William Sound, Copper River and Bering River. Bull. U.S. Bur. Fish., 47: 187-247.
Red; coho; pink; chum; king; Prince William Sound, south Alaska; catch records.
- Rich, Willis H., and Holmes, 1928
Harlan B.
Experiments in marking young chinook Salmon on the Columbia River, 1916 to 1927. Bull. U.S. Bur. Fish., 44: 215-264.
Chinook; Columbia R.; marking and recapture data; time species migrates upstream; racial analysis-experimental data; size of species at time of return; movements in ocean; time species returns from ocean to stream mouth; home stream theory; expts. 6,7,8 & p. 262; spawning period; age at time of return; transplantation expt.
- Rich, Willis H., and Morton, 1930
Frederick G.
Salmon-tagging experiments in Alaska, 1927 and 1928. Bull. U.S. Bur. Fish., 45: 1-23.
Pink; red; chum; coho; king; southeastern Alaska, Uganik Bay, Kokiak Island & Nicholaski Spit, Alaska Peninsula; tagging & recapture data; migration routes in channels of S.E. Alaska and Alaskan Peninsula.
- Rich, Willis H., and Suomela, 1929
Arne J.
Salmon & tagging Experiments in Alaska, 1926. Bull. U.S. Bur. Fish., (2) 43: 71-104.
Red, coho, pink, chum; southeastern Alaska; tagging & recovery; migration routes.
- Ricker, William E. 1934
Plankton Organisms and their Relation to the Sockeye of Cultus Lake. Prog. Rep. Biol. Stas. Nanaimo & Prince Rupert. Biol. Bd. of Can., 21: 14-17.
Sockeye; Cultus Lake, B.C.; food & feeding habits in lakes.
- Ricker, William E. 1937
The Food and Food Supply of Sockeye Salmon (Oncorhynchus nerka) in Cultus Lake, British Columbia. J. Biol. Bd. Can., 3: 450-468.
Oncorhynchus nerka, sockeye; Cultus Lake; food & reeding habits in first, second, & third year of life; Oncorhynchus kisutch, coho, competitor; intra-specific food competition.
- Ricker, William E. 1938a
A Comparison of the Seasonal Growth Rates of Young Sockeye Salmon & Young Squawfish in Cultus Lake; Prog. Rep. Biol. Stas. Nanaimo & Prince Rupert, Fish. Res. Bd. of Can., 36: 3-5.
Sockeye; Cultus Lake, B.C.; growth rates.
- Ricker, William E. 1938b
"Residual" and Kokanee salmon in Cultus Lake. J. Fish. Res. Bd. Can., 4: 192-218.
Oncorhynchus nerka, sockeye; Cultus Lake; anadromous, kokanee (land-locked sockeye) & "residual" sockeye

- O. nerka kennerlyi; comparisons; sex ratios; age & size at maturity; importance of rate of growth & sex in residualness; parasite; spawning period; food & feeding habits; growth rates; color; spawning behavior.
- Ricker, William E. 1940
- On the origin of kokanee, a freshwater type of sockeye salmon. Trans. Roy. Soc. Can., 34 (3): 121-135.
- O. keta, chum; O. nerka, sockeye; O. n. kennerlyi, kokanee, kickaninnies, landlocked sockeye, little redfish, silver trout; distribution; detailed racial analysis; parasites; spawning period; age at time of return; length at time of return; sexual dimorphism, color, body changes; behavior of fry; food & feeding habits; time young spend in freshwater; home stream theory.
- Ricker, William E. 1947
- Hell's Gate and the sockeye. Jour. of Wildlife Management, 11: 10-20.
- Sockeye; distribution; time species migrates upstream.
- Ricker, William E. 1954
- Pacific salmon for Atlantic waters? The Canadian Fish Culturist, 16: 6-14.
- O. mason, cherry; O. tshawytscha (sic.), chinook, spring; O. kisutch, coho; O. nerka, sockeye; O. gorbuscha, pink; O. keta, chum; time young spend in freshwater; food & feeding habits: ocean; range; age at time of return.
- Ricker, William E., and Robertson, 1935 A.
- Observations on the behavior of adult sockeye salmon during the spawning migration. Can. Field-Nat., 49: 132-134.
- O. nerka, sockeye; Vedder Cr., Fraser R., B.C.; time species migrates upstream; marking & recapture data--migration routes; home stream theory.
- Riddle, Matthew C. 1917
- Early development of the Chinook salmon. Puget Sound Marine Station Publ., Wash. (State) Univ., 1: 319-339.
- O. tshawytscha; Oregon; description of egg & sperm; development & hatching.
- Rivers, Cole M. 1917
- Rogue River investigations. Bull. Oregon State Game Comm., 2: 1,4
- Chinook; silver; Rogue River, Oregon; time species returns from ocean to stream mouth; time eggs hatch; time of seaward migration.
- Robertson, Alexander 1920
- The progeny of a pair of salmon. Pac. Fisherman, July, 18: 55-56.
- Dog; sockeye; Harrison L., B.C.; Nature of spawning site; behavior of fry.
- Robertson, Alexander 1921
- Some observations on the growth of young sockeyes. Trans. Amer. Fish. Soc. 51: 91-94.
- Sockeye; Brit. Col.; time of seaward migration; time young spend in freshwater; size at time of seaward migration; growth rates in freshwater (direct measurements); marking & recapture data; food in lakes.

- Robertson, J.G. 1948
Smith Inlet Sockeye, Prog. Rep.
Pac. Coast Stas., Fish. Res. Bd.
of Can., 75: 31-34.
Sockeye; Smith Inlet, B.C.; age
at time of return (by scale studies);
sex ratios; size of species at time
of return.
- Robertson, J.G. 1949
Sockeye Fry Production in a Small
British Columbia Coastal Water-
shed; Prog. Rep. Pac. Coast Stas.
Fish, Res. Bd. of Can., 80: 55-57.
Pink; chum; coho; sockeye; Port
John Lake, B.C.; time sockeye migrate
upstream; egg counts; counts of
migrant adults; time of downstream
migration to lake (fry).
- Robinson, W. Russell 1884
A California Salmon taken in James
River; Bull. U.S. Fish. Comm. 4:
290.
California Salmon; James River;
Virginia; intro. & acclim.
- Rockwood, A.P. 1876
Hatching and distribution of Calif.
salmon in tributaries of Great
Salt Lake. Rep. Commr. for 1873-74 and
1874-75, U.S. Comm. Fish & Fish.,
434-435.
California salmon; intro. & acclim.:
Utah.
- Roedel, Phil M. 1948
Common Marine Fishes of California.
Calif. Fish Game, Fish Bull. 68:
1-150.
Oncorhynchus keta, chum; O. gorbuscha,
pink; O. nerka, red; O. tshawytscha,
king; O. kisutch, silver; figured;
color; distribution; unauthorized
names for O. tshawytscha: chinook
salmon, quinnat, tyee, spring, black,
dog, chub, silver, hookbill, Sacra-
mento River salmon, Columbia River
salmon; unauthorized names for O.
kisutch: coho, dog, hookbill, silver-
sides, jack.
- Roedel, Phil M. 1953a
Common Ocean Fishes of California
Coast. Calif. Fish Game, Fish Bull.,
91: 1-184.
Oncorhynchus nerka, sockeye; O. keta,
chum; O. gorbuscha, pink; listed;
O. tshawytscha, king, chinook,
quinnat, tyee, spring, black, chub,
hookbill, Sacramento River Salmon,
Columbia R., salmon; O. kisutch,
silver, coho, dog, hookbill, silver-
sides, jack; range; color; comparison
(keys).
- Roedel, Phil M. 1953b
Official common names of certain
marine fishes of California. Cal.
Fish & Game., 39: 251-262.
O. gorbuscha, pink; O. keta, chum;
O. tshawytscha, king, chinook; O.
kisutch, silver; O. nerka, sockeye,
red; listed.
- Rounsefell, George A., and 1940
Kelez, George B.
The Salmon and Salmon fisheries of
Swiftsure Bank, Puget Sound, and
the Fraser River. Bull. U.S. Bur.
Fish., 48: 693-823.
Oncorhynchus nerka, red (in Alaska),
blueback (on Skagit, Quinault, &
Col. Rivers), sockeye; O. kisutch,
coho, silver, silversides; O.
tshawytscha, king, spring, chinook
(on Col. Riv.), quinnat (on Sacra-
mento Riv.); O. gorbuscha, pink,
humpback; O. keta, chum, dog;

- blackmouth, for immature king and sometimes cohos; immature cohos in Gulf of Georgia called bluebacks; size at time of return; Swiftsure Bank, Puget Sound & Fraser River; general life history; age at time of return; spawning period; time young migrate seaward; size at time of seaward migration; movements in ocean, young coho; growth rates; marking & recapture data; white & red fleshed kings; homing instinct; time species returns from ocean to stream mouth; trap catches-relative abundance of species; distribution; nature of spawning site; food & feeding habits; immature coho & king feeding at Swiftsure Bank.
- Royal, Lloyd A. 1951
Sockeye Facts which may bear upon the Fraser Run of '51. Pac. Fisherman, 9: 22-25.
Sockeye; Fraser River; segregation of populations; time species returns from ocean to stream mouth; time species migrates upstream; counts; racial analysis.
- Lucker, R.R., Whipple, W.J., Parvin, J.R., and Evans, C.A. 1953
A contagious disease of salmon possible of virus origin. Fish. Bull. U.S. Fish & Wildlife Service, 54: 25-6.
Oncorhynchus nerka, blueback, sockeye, kokanee; Leavenworth & Winthrop hatcheries, Wash.; internal, probably virus disease which did not infect O. tshawytscha, O. kisutch, or Salmo clarki clarki.
- Rutter, Cloudsley 1902
Studies in the Natural History of the Sacramento Salmon, Appendix to 17th Biennial Report of Bd. of Fish. Comm., 64-76.
- Oncorhynchus chouicha, Sacramento quinnat; dog; humpback; Calif.; figured; nature of spawning site; spawning behavior, milt & ova described; time eggs hatch; time of seaward migration; rate growth of fry; behavior of migrating fry; food; external & internal parasites; marking & recapture data; age at time of return; rate of upstream migration; home stream theory; sexual dimorphism; post spawning behavior.
- Rutter, Cloudsley 1904a
Artificial propagation of salmon in the Sacramento R. Append. to 18th Biennial Rep. Bd. of Fish. Commrs. State of Calif., 1903-1904: 103-107.
Quinnat or Sacramento R. salmon; figured.
- Rutter, Cloudsley 1904b
Natural History of the Quinnat Salmon, A Report on Investigations in the Sacramento River, 1896-1901. Bull. U.S. Fish Comm., 22: 65-141.
Oncorhynchus tshawytscha, Sacramento or quinnat, Columbia River salmon, king, chinook; O. nerka, blueback, red, rockfish, sockeye; O. kisutch, silver; O. gorbuscha, humpback; O. keta, dog; Sacramento Riv. & tributaries; survival time of milt & fertilizable period of ova; behavior of migrating fry; movements in ocean; feeding habits in freshwater; sexual dimorphism; two forms of adult males; post spawning behavior (death after spawning); distribution; type of stream chosen; spawning time; spawning behavior; incubation period; behavior of alevins & fingerlings; behavior of migrating fry; effect of sea water on alevins & fry; fingerling marking experiments; mature males & females 4"-6" long, eggs fertilized & hatched; homing

- theory, p. 121; migration through S.F. Bay; marking & recapture data; bodily changes after entering fresh-water; figures of alimentary tracts; sex ratios; hermaphrodites; time of seaward migration; time young spend in freshwater; age at time of return; into. & acclim., Paper Mill Creek, Marin Co., Calif., of king salmon; color; time species migrates upstream.
- Rutter, Cloudsley 1907
- Do quinnat salmon return to their native streams? (Extracts from "Rep. on Investigations in the Sacramento R., 1896-1901") App. 19th Biennial Rep. State. Bd. Fish. Commrs. Calif., 1905-06: 93-97.
- Quinnat; Sacramento R., Calif.; home stream theory; tagging and recapture data; spawning behavior; spawning period.
- Rutter, Cloudsley 1908
- The Fishes of the Sacramento-San Joaquin Basin, with a study of their distribution and variation. Bull. U.S. Bur. Fish., 27: 103-152.
- Oncorhynchus gorbuscha, humpback; O. keta, dog; reported rarely in canneries; O. kisutch, O. tshawytscha; listed; key; spawning period; time young stay in freshwater; time species migrates upstream; distribution.
- S--
- Saito, Toradiro 1940
- Structure of scales of Kamchatka silver salmon, Oncorhynchus keta (Walb.), in relation to the locality from which the fish are taken. (In Japanese with English summary). Bull. Jap. Soc. Sci. Fish., (2)9:49-50.
- Sakano, Eiichi and Hara, Shigeru 1955
- Marking experiments of young salmon in Hokkaido. 1) Results recaptured in 1954. Scientific Reps. of the Hokkaido Fish Hatchery, 10: 53-61. (Entirely in Japanese).
- No English abstract.
- Sano, Seizo 1951
- On the stock of salmon (Oncorhynchus keta Walbaum) in the Coastal waters of Japan and their homing instinct. Sci. Reps. of the Hokkaido Fish Hatchery, 6: 1-10. (English summary included).
- Oncorhynchus nerka Walbaum, sockeye; O. keta Walbaum, chum, dog; white salmon, Tokeshiazu salmon, autumn salmon; under autumn salmon; south Kurile group, Tohoku, Pacific, Nemuro Bay, Kitani, Ishikari by group (October, December) Shiriuchi group; Japan; description; racial analysis--comments; tagging & recapture data on migration routes; home stream theory; parasites.
- Sano, Seizo 1955
- Observations on the natural spawning of the salmon, O. keta. Conditions of the spawning bed. Sci. Reps. of the Hokkaido Fish Hatchery., 10: 1-6. (In Japanese with English abstract).
- O. keta; localities: Shiriuchi, Mohegi, Yurappu Rivers, and tributaries of Tokachi R., Japan; time species migrates upstream; nature of spawning site.
- Sano, Seizo 1954
- On the recovery of tagged salmon, June-October 1954. (In Japanese). Sci. Rep. Hokkaido Fish Hatchery, 9(1,2): 199-204.
- Not abstracted.

Sano, Seizo, and Kobayashi, 1952
Tetsuo

An ecological study on the salmon fry Oncorhynchus keta (I). Sci. Rep. Hokkaido Fish Hatch., 7: 1-10. (with English summary)

Oncorhynchus keta; O. masou; coastal waters and rivers of Hokkaido, Japan; time of seaward migration; movements in ocean; growth rates determined by direct measurement; scale figures.

Sano, Seizo, and Kobayashi, 1953a
Tetsuo

An ecological study on the salmon fry Oncorhynchus keta (II). The migration and growth of the fry in the marking experiment. Sci. Rep. Hokkaido Fish Hatch., 8: 71-79. (with English summary)

Oncorhynchus masou; O. keta; Japan; marking and recapture data on migration routes; growth rates; time of seaward migration.

Sano, Seizo, and Kobayashi, 1953b
Tetsuo

On the returning of pink salmon (Oncorhynchus gorbuscha Walbaum) in Yurappu R. Sci. Rep. Hokkaido Fish Hatch., 8: 1-10. (with English abstract).

Oncorhynchus gorbuscha, pink; Yurappu R., Japan; Marking & recapture data on migration routes; figured.

Scattergood, Leslie A. 1949

Notes on the Kokanee (Oncorhynchus nerka kennerlyi). Copeia, 4: 297-298.

Oncorhynchus nerka kennerlyi, kokanee, silver trout, little redfish, land-locked sockeye, "yank"; range: Lakes of Pacific

Northwest and British Columbia; Washington State; sexual dimorphism; intro. & acclim.: Maine; size at time of return; egg count.

Schaefer, Milner B. 1951

A study of the spawning populations of sockeye salmon in the Harrison River System, with special reference to the problem of enumeration by means of marked members. Bull. 4, Internat'l. Pac. Salmon Fish. Comm., 1-207.

Sockeye; Fraser R., Can.; distribution; spawning period; racial analysis; detailed data -- scale studies: tagging & recapture data.

Scheer, Bradley T. 1939

Homing instinct in salmon. The Quart. Review of Biol., 14:

O. gorbuscha, humpback, pink; O. keta, chum, dog; O. kisutch, coho, silver; O. nerka, bullock, quinnat, red, sockeye; O. tshawytscha, king, chinook quinnat, spring, tyee; distribution; marking & recapture data; homing instinct; distance traveled upstream; time young spend in freshwater; age at time of return; age group ratios; size at time of return; detailed racial analysis, methods; type of stream chosen; movements in ocean.

Schultz, Leonard P. 1929

Check-list of the Fresh-water Fishes of Oregon & Washington. Fisheries, Wash. University Publications, 2: 43-50.

Oncorhynchus gorbuscha, humpback; O. keta, dog; O. tshawytscha, king, spring; O. kisutch, silver; O. nerka, sockeye; O. nerka kennerlyi, little redfish; listed.

Schultz, Leonard P.

1934

Species of salmon and trout in the northwestern United States. Proc. Fifth Pac. Sci. Cong., 1933, 5: 3777-3782.

O. keta, dog; O. gorbuscha, humpback; O. nerka, blueback, red; O. kennerlyi (not considered a species), little redfish, silver trout; O. kisutch, silver, coho; O. tschawytscha, king, quinnat; northwestern United States; comparisons (key).

Schultz, Leonard P.

1935

The breeding activities of the little redfish, a land-locked form of the sockeye salmon, Oncorhynchus nerka. Mid-Pacific Magazine, 48(1): 67-77.

O. nerka, little redfish, silver trout; O. kisutch; Swamp Cr., Washington; nature of spawning site; spawning period; sexual dimorphism; color, bodily changes; size at time of return; spawning behavior; post-spawning behavior.

Scofield, H. B.

1898a

Notes on an Investigation of the Movement & Rate of Growth of the Quinnat Salmon Fry in the Sacramento River. Extracted from the Appendix of the 15th Biennial Rep. State Bd. of Fish Comm. State of Cal., 1897-1898: 66-71.

Quinnat; Sacramento River; time eggs hatch; rate of growth of fry; time of seaward migration; time young spend in freshwater; size at time of seaward migration.

Scofield, H. B.

1898b

A Report on the Planting of Quinnat Salmon Fry in the Short Coast Streams Marin County, Calif. Extracted from the Appendix of the 15th Biennial Report. State Bd. of Fish Comm. State of Cal. Year 1879-1890., 49-65.

Oncorhynchus keta, dog; quinnat; Marin County, Calif.; time eggs hatch; fry's figured; food & feeding habits in stream; behavior of fry; time & rate of seaward migration; growth rate of fry in freshwater; time young spend in freshwater.

Scofield, N.B.

1900

A report on the planting of quinnat salmon fry in the short coast streams of Marin County, California, with results of observations made upon their movements, food, rate of growth, enemies, etc. Appendix, Fifteenth Biennial Report of the State Board of Fish Commissioners of the State of California for the years 1897-1898, 49-62.

Quinnat; O. keta, dog; locality: Marin Co., Calif., species figured; time of seaward migration; behavior of fry and fingerlings; rate of growth (determined by direct measurement); food & feeding habits; intro. & acclim. to Marin Co., Calif.

Scofield, H.B.

1916

The Humpback & Dog Salmon Taken in San Lorenzo River, Calif. Fish & Game, 2: 1-41

Oncorhynchus gorbuscha, humpback O. keta, dog; quinnat, silver, blueback; description; color; San Lorenzo River; weight at time of return.

Scofield, N. B.

1913

Quinnat Salmon in New Zealand, Calif. Fish & Game, 4: 16-17.

Quinnat; intro. & acclim. into New Zealand.

Scofield, N. B.

1919a

Commercial Fishery Notes, Salmon at Monterey, Calif. Fish & Game, 5:1-198. King; Monterey; approximate time of runs.

- Scofield, N. B. 1919b Salmon of the Sacramento Need More Protection. Calif. Fish & Game, 5: 196-197.
Salmon; distribution; Sacramento River; approximate time species migrate upstream.
- Scofield, N.B. 1920 Marking Sockeye Salmon Fry, Calif. Fish & Game, 6: 80-81.
Sockeye; distribution; Oregon, Columbia River, Alaska; marking & recapture data.
- Scofield, N.B. 1922 Commercial Fishery Notes, Salmon Investigation, Calif. Fish & Game, 1922, 8: 236.
Salmon; Monterey, Point Reyes, Fort Bragg, Eureka, Klamath River; distribution; age at time of return; movements in ocean.
- Scofield, N.B. 1929 The status of the salmon in Calif. Calif. Fish and Game, 15: 13-18
Sacramento R. salmon, chinook; Sacramento R., Klamath R.; time the species migrate upstream; distribution.
- Scofield, W.L. 1920 Silver Salmon at Monterey in 1920. Calif. Fish & Game, 6:175.
Chinook, silver; Monterey Bay; size at time of return; time species returns from ocean to stream mouth.
- Scofield, W. L. 1937 A Silver Salmon at Los Coronados Islands; Cal. Fish & Game, 23: 215.
Oncorhynchus kisutch, silver; Los Coronados Islands; distribution.
- Schoning, Robert A. 1948 Trends of Columbia River blueback salmon populations, 1938-1947. Fish Comm. of Oregon, Res. Briefs, 1(2):33-40.
Not abstracted.
- Schoning, R.W.; Merrell, T.R., Jr., and Johnson, D.R. 1951 The Indian Dip Net Fishery at Celilo Falls on the Columbia River. Fish Commis. State of Oregon. Contrib. 17: 1-43.
Spring, chinook; blueback; silver; Celilo Falls, on Columbia River, Oregon; catch records.
- Senter, Vance E 1940 Observations on the Food of Pacific Salmon. Pac. Fisherman, 30: 26.
Pink, chum; red; coho; king; Alaska; food.
- Shapovalov, Leo 1940 The homing instinct in salmon and trout. Proc. Sixth Pac. Sci. Cong., 1939, 3: 317-322.
Silver; O. gorbuscha, pink; homing instinct.
- Shapovalov, Leo 1947 Distinctive characters of the species of anadromous trout and salmon found in California. Cal. Fish & Game, 33: 185-190.
O. tshawytscha, king, black, chub, dog, hookbill, silver, chinook, spring, quinnat, tyee; O. kisutch, silver, jack dog, hookbill, coho, silversides; O. gorbuscha, pink, humpback; O. keta, chum, dog; O. nerka, red, sockeye, blueback, kokanee, little redfish, silver trout; figured; description; counts & measurements; color; comparisons, relationships, keys; range; distribution; sexual dimorphism; color & body changes.

Shapovalov, Leo, and Berrian, 1940
William

An experiment in hatching silver salmon (O. kisutch) eggs in gravel. Trans. Amer. Fish. Soc. 69th Annual Meeting for 1939, 135-140.

O. kisutch, silver; locality: Santa Cruz, Cal.; time eggs hatch; behavior fry and fingerlings; spawning behavior.

Shapovalov, Leo, and Taft, 1954
Alan, C.

The Life Histories of the Rainbow Trout (Salmo gairdneri gairdneri) and Silver Salmon (Oncorhynchus kisutch) with special reference to Waddell Creek, California, and Recommendations regarding their Management. Calif. Fish Game Fish Bull., 98: 1-375.

Oncorhynchus keta, chum, dog; O. nerka, red; O. gorbuscha, pink; and king were mentioned; O. kisutch, silver, jack, dog, hookbill, coho, silver-sides; Waddell and Scott creeks, Santa Cruz County, Calif.; time species migrates upstream; age at time of return; size at time of return; sex ratio; sexual dimorphism; spawning behavior; growth rates; behavior of fry and fingerlings; time young spend in freshwater; time of seaward migration; movements in ocean; homing instinct; external parasites; food & feeding habits.

Shaw, Paul A., and Maga, John A. 1943

The effect of mining silt on yield of fry from salmon spawning beds; Cal. Fish & Game, 29: 29-41.

O. kisutch, silver; Brookdale Fish Hatchery, Santa Cruz County, Calif; spawning period; time eggs hatch.

Shebley, W. H. 1921

Salmon Egg Collecting, Fall of 1919, Calif. Fish & Game, 7: 49-51.

Salmon; Sacramento R., Klamath R.; time species migrates upstream

Silliman, Ralph P. 1941

Fluctuations in the Diet of the Chinook and Silver Salmons (Oncorhynchus tshawytscha and O. kisutch) off Washington, as Related to the Troll Catch of Salmon. Copeia, 2: 80-87.

Oncorhynchus tshawytscha, chinook; O. kisutch, silver; Estevon Pt. Vancouver Is. to Neah Bay and Destruction Is. to Columbia River.; food and feeding habits; ocean.

Silliman, Ralph P. 1942a

Estimation of the Troll Catch of Columbia River chinook salmon, Oncorhynchus tshawytscha. Special Sci. Rep. U.S. Fish & Wildlife Service, 50: 1-12.

Oncorhynchus tshawytscha, chinook; Columbia River; California; distribution; catch records; tagging and recapture data.

Silliman, Ralph P. 1950

Fluctuations in abundance of Columbia River chinook salmon (Oncorhynchus tshawytscha), 1935-1945. Fish Bull. U.S. Fish & Wildlife Service, 51: 365-383.

Oncorhynchus tshawytscha, chinook, spring, king; Columbia Riv.; time species migrates upstream;

Silliman, Ralph P., Rich, Willis 1947
H., and Bryant, Floyd G.

Intraseasonal and interseasonal variations in average weight of Columbia River Chinook salmon (Oncorhynchus tshawytscha). Special Sci. Rep. U.S. Fish & Wildlife Service, 34: 1-11.

Oncorhynchus tshawytscha, chinook, Columbia; weight at time of return.

- Skud, Bernard Linar 1955
Length-weight relationship in migrating fry of pink salmon. (O. gorbuscha) in Sashin Creek, Little Port Walter, Alaska. Copeia, 3: 201-207.
O. gorbuscha, pink; locality: Little Port Walter, Alaska; time species migrates upstream; time of seaward migration; size at time of return.
- Slack, J. H. 1876
Matching and distribution of California salmon. Rep. Commr. for 1873-74 and 1874-75, U.S. Comm. Fish and Fish., Part III, 431-434.
Salmo gairdneri, California salmon; intro. & acclim.: Pa., N.J., Va., N.Y.
- Smedley, Enid Mary 1933
Nematode Parasites from Canadian Marine and Fresh-water Fishes. Contrib. Can. Biol. Fish. N.S., 3: 169-179.
Oncorhynchus nerka, Cultus Lake; internal parasite: Philonema oncorhynchi, in body cavity, a nematode.
- Smedley, S. C. 1952
Notes, pink salmon in Prairie Creek, California. Cal. Fish & Game, 38: 275.
O. gorbuscha, pink, humpback; Calif.; range; distribution; time the species migrates upstream; size of species at time of return; age at time of return; sexual dimorphism, body changes; figured.
- Smiley, Charles J. 1834a
Brief Notes upon Fish and Fisheries Bull. U.S. Fish Comm., 4: 359-368.
California salmon; Wisconsin; Lake Geneva; Australia; intro. & acclim.
- Smiley, Charles J. 1834b
Index to the distribution, made under the auspices of the United States Fish Commission, of fish in public waters of the United States, during the decade ending 1830. Rep. Commr. for 1831, U.S. Comm. Fish & Fish., 917-1035.
California salmon; intro. & acclim.; States in U.S.A.
- Smiley, Charles W. 1834c
A statistical review of the production and distribution to public waters of young fish, by the U.S. Fish Comm. from its organization in 1871 to the close of 1880. Rep. Commr. for 1881, U.S. Comm. Fish & Fish., 925-915.
Calif. salmon; intro. & acclim.: Ala., Ark., Calif., Col., Conn., Del., Ga., Ill., Ind., Iowa, Kan., Ky., La., Me., Md., Mass., Mich., Minn., Miss., Mo., Nebr., Nev., N.H., N. J., N.Y., N. C., Ohio, Penn., R. I., S. C., Tenn., Tex., Vt., Va., W. Va., Misc., with detailed distribution in these states.
- Smiley, Charles W. 1834d
Brief Notes upon Fish and the Fisheries. Bull. U.S. Fish Comm., 4: 305-320.
Spring & fall salmon; Sacramento R., Calif.; catch records, 313.
- Smiley, Charles J. 1835
Notes upon fish and fisheries. Bull. U.S. Fish Comm., 5: 465-469.
California salmon; Yarra Yarra, near Melbourne; intro. & acclim.
- Smiley, Charles J. 1837a
Notes upon fish and the fisheries. Bull. U.S. Fish Comm., 6: 401-416.
California salmon, Oncorhynchus chouicha; egg size; egg counts; intro. & acclim. in Australia; size at time of return.

Smiley, Charles S.

1887b

Notes upon fish and the fisheries.
Bull. U.S. Fish Comm., 6: 449-464.

Salmo quinnat; intro. & acclim.:
New Zealand.

Smith, E. Victor

1915

Salmon hybridization. Trans. Pac.
Fish. Soc. for 1914, 71-78.

O. tschawytscha, chinook; O. kisutch,
silver; locality: Washington; time
eggs hatch; hybridization; description;
counts & measurements; color.

Smith, E. Victor

1916

Effect of light on the development
of young salmon. Puget Sound
Biological Station Publications,
1: 89-107.

O. tschawytscha, chinook, king;
O. gorbuscha, humpback; Washington:
effect of light on growth,
development & behavior of pinks
and kings.

Smith, Hugh M

1895a

Notes on the Capture of Atlantic
Salmon at Sea & in the Coast
Waters of the Eastern States. Bull.
U.S. Fish Comm., 14: 95-99.

Oncorhynchus chouicha, chinook, quinnat;
key to separate Atlantic & Pacific
salmon; figured; intro. & acclim.:
Atlantic Coast.

Smith, Hugh M.

1895b

Notes on a Reconnaissance of the Fish-
eries of the Pacific Coast of the
United States in 1894. Bull. U.S. Fish
Comm., 14: 223-228.

Oncorhynchus chouicha, chinook or
quinnat; O. keta, dog; O. gorbuscha,
humpback; O. kisutch, silver; blue-
back; distance traveled upstream;
distribution; catch records; weight
at time of return; food & feeding habits;
stream; time species migrates upstream.

Smith, Hugh M.

1898a

Report of the Div. of Scientific
Inquiry. Rep. Commr. for 1897, U.
S. Comm. Fish and Fish., xci-cxlv.

Chinook; Oncorhynchus nerka, blueback
sockeye; Ore., Idaho, Wash., distribu-
tion; time eggs hatch; time young
spend in freshwater; intro. and acclim.:
quinnat salmon, Bear Valley Creek,
Paper Mill Creek, Dutch Bill Cr.,
Olema Cr., Calif.; behavior of finger-
lings.

Smith, Hugh M.

1898b

The Salmon Fishery of Penobscot Bay
and River in 1895 and 1896.
Bull. U.S. Fish. Comm., 17: 113-124.

Oncorhynchus tschawytscha, quinnat
or chinook; distance traveled upstream;
nests; condition after spawning; key;
figure of adult; intro. & acclim., Maine
time species migrates upstream; Pac.
Coast;

Smith, Hugh M.

1899

Report on the inquiry respecting food
fishes and the fishes grounds. Rep.
Commr. for 1898, U.S. Comm. Fish and
Fish., cxxii-cxlv.

Oncorhynchus nerka, redfish, dwarf
redfish; O. tschawytscha, chinook;
O. kisutch, silver, dog; Ore., Wash.,
Calif.; spawning period; racial
analysis--mention of two forms of
nerka in Wallowa L., Ore.; time of
seaward migration; behavior of finger-
lings; distribution.

Smith, Hugh M.

1900

Report on the inquiry respecting food
fishes and the fishing grounds. Rep.
Commr. for 1899, U.S. Comm. Fish
and Fish., cxix-cxlv.

Oncorhynchus nerka, redfish and the
small form; California salmon; Columbia
R.; Calif.; time species migrates
upstream; spawning period; nature of
spawning site; spawning behavior;
behavior of fry and fingerlings; time
of seaward migration; age at time of
return.

- Smith, Hugh M. 1907
Some observations on European Fisheries and fish culture. Trans. Amer. Fish Soc., 36: 170-179.
Humpback; intro. & acclim. along Norwegian coast.
- Smith, Hugh M. 1917
Report of the United States Comm. of Fisheries, 1916. Rep. Comm. Fish., for 1816. U.S. Bur. Fish., 836:1-114.
Blueback; chinook; redfish; Alaska; Yes Bay; Jood R.; Dennyo R., Maine; Clackamas R., Ore.; time species migrates upstream; into. & acclim.: "aine.
- Smith, Hugh M. 1919
Report of the Comm. of Fisheries for the fiscal year ended June 30, 1917. Rep. Comm. Fish. for 1917, U.S. Bur. Fish., 845: 1-104.
intro. & acclim.: eggs of the Ayu (dwarf salmon of Japan) to Wash. (unsuccessful).
- Smith, Hugh M. 1920
Report of the U.S. Commr. of Fisheries for the fiscal year 1918. Rep. Comm. Fish for 1918, U.S. Bur. Fish., 862: 1-94.
Pink, humpback; intro. & acclim.: Me: Denny's and Pembroke, etc. Rivers; size of species at time of return.
- Smith, Richard R., and Quistorff, 1940
Elmer
The control of octomitus--calomel in the diet of hatchery salmon. Prog. Fish. Cult., July-Oct., 51: 24-25.
Chinook; silver; Wash. (state); parasites.
- Smoker, William A. 1953
Stream flow & silver salmon production in western Washington. Wash. Dept. of Fisheries. Fish. Res. Papers., 1: 5-12.
O. kisutch, silver; time young spend in freshwater; catch records.
- Smoker, William A. 1954
A preliminary review of salmon fishing trends on inner Puget Sound. State of Wash., Dept. of Fisheries., Res. Bull., 2: 1-55.
O. tschawytscha, chinook, king, black-mouth, tyee, quinnat, spring; O. keta, chum, dog, fall; O. kisutch, silver, hooknose, coho, silver trout, salmon trout, silverside; O. gorbuscha, pink humpback, humpies; O. nerka, sockeye, red. blueback, landlocked sockeye salmon, kokanee, redfish, silver "trout"; Puget Sound; time young spend in freshwater; age at time of return; time species migrate upstream; type of stream chosen; catch records.
- Snyder, John Otterbein 1908
The Fishes of the Coast Streams of Oregon and Northern Calif. Bull. U.S. Bur. Fish., 27: 153-189.
Oncorhynchus keta; O. tschawytscha; O. kisutch; northern Calif. & Oregon; range.
- Snyder, John Otterbein 1914
The Fishes of the Streams Tributary to Monterey Bay, California. Bull. U.S. Bur. Fish., 32: 47-72.
Oncorhynchus tschawytscha, chinook; O. kisutch, silver; distribution; streams tributary to Monterey Bay, Calif.

Snyder, John Otterbein

1918

The fishes of the Lahontan System of Nevada and Northeastern California. Bull. of U.S. Bur. Fish, 35: 33-66. (1915-1916)

O. kisutch, silver; O. tschawytscha, king; locality: Lahontan System, Nev. & Calif. intro. to Truckee River of O. kisutch; distribution.

Snyder, John Otterbein

1921a

How Many Eggs Does a Salmon Lay? Cal. Fish & Game, 7: 63-64.

King; Klamath River; size at time of return; age at time of return; egg counts.

Snyder, John Otterbein

1921b

Three California Marked Salmon Recovered. Calif. Fish & Game, 7: 1-6.

Salmon; figured; counts & measurements; distribution; Monterey, Shelter Cove, Sacramento River; size at time of return; age at time of return; growth rates determined by scale studies; marking & recapture data.

Snyder, John Otterbein

1922

The Return of Marked King Salmon Grilse. Calif. Fish & Game, 6: 102-107.

King; description; counts & measurements; Klamath River; time returned from ocean to stream mouth; size of species at time of return; age at time of return; time of seaward migration; time young spend in freshwater; size at time of seaward migration; growth rates (freshwater, saltwater, hatchery) determined by scale studies; marking & recapture data; food & feeding (ocean, stream).

Snyder, John Otterbein

1923

A Second Report on the Return of the King Salmon Marked in 1917, in Klamath River. Calif. Fish & Game, 9: 1-9.

King; Sacramento Riv., Klamath Riv.; range; time species migrates upstream; sex ratios; marking & recapture data; size at time of return; movements in ocean;

Snyder, John Otterbein

1924

Young Salmon Taken at Sea, Calif. Fish & Gam., 10: 62-64.

King; Half Moon Bay, Monterey Bay, Calif.; color; food & feeding habits-ocean; age when caught; time young spend in freshwater.

Snyder, John Otterbein

1926

Salmon investigation, Calif. Fish & Game, 14: 25-29.

King; Sacramento R., Klamath R.; distribution; marking & recapture data; migration routes.

Snyder, John Otterbein

1931

Salmon of the Klamath River, California. I. The Salmon and the Fishery of Klamath River. II. A Report on the 1930 Catch of King Salmon in Klamath River. Fish Bull., Calif Fish & Game, Bull., 34: 1-130.

Oncorhynchus tschawytscha, king; O. kisutch, silver; O. gorbuscha, humpback; O. keta, dog; O. nerka, blueback or redfish; Klamath River, Sacramento R., Feather R., Trinity R., Monterey Bay; age at time of return; size at time of return; counts & measurements; time species migrates upstream; comparisons (fig. 2); catch records; description; color; sex ratios; time of seaward migration; tagging & recapture data; movement in ocean; home stream theory.

- Snyder, John Otterbein 1933
California trout; Calif. Fish & Game, 19: 81-112.
Oncorhynchus; king, silver, humpback, dog; listed.
- Snyder, John Otterbein 1934
Plant silver salmon in Eagle Lake; Calif. Fish & Game, 20: 389-390.
Silver; Eagle Lake, Lassen County, Calif.; food; intro. & acclim.
- Snyder, John Otterbein 1936a
Experimental introduction of salmon into Klamath River. Cal. Fish & Game, 22: 322-323.
King; time species migrates upstream; intro. & acclim.; Columbia R. to Klamath R.
- Snyder, John Otterbein 1936b
Notes on the 1930 Catch of King Salmon Klamath R. Cal. Fish & Game, 22: 129-138.
King; age at time of return.
- Snyder, John Otterbein, and Scofield, Eugene C. 1924a
An Experiment Relating to the Homing Instinct of King Salmon, Calif. Fish & Game, 10: 9-17.
King; Klamath, Shasta Rivs; size of pond fish; description of precocious males; color; marking of fins; homing instinct; food & feeding habits.
- Stone, Arthur W. 1914
The spawning beds of Rivers Inlet, Report of the Commissioner of Fisheries, 1913, Province of British Columbia, 46-48.
Sockeye; spring; coho; Rivers Inlet, B.C.; distribution; spawning period.
- Stone, Arthur W. 1915a
The spawning grounds of Rivers Inlet. Rep. Commr. Fish. 1914, Prov. Brit. Col., 32-34.
Sockeye; coho; spring; Rivers Inlet, N.C.; spawning period - approx., no exact dates; distribution.
- Stone, Arthur W. 1915b
The spawning grounds of Smith Inlet. Rep. Comm. Fish., 1914, Prov. Brit. Col., 35-36.
Sockeye; coho, spring; Smith Inlet, B.C.; spawning period - approx., no exact dates.
- Stone, Arthur W. 1916a
The spawning grounds of Rivers Inlet. Rep. Commr. Fish., 1915, Prov. Brit. Col., 22-24.
Sockeye, coho; Rivers Inlet, B.C. spawning period; distribution.
- Stone, Arthur W. 1916b
The spawning grounds of Smith Inlet. Rep. Comm. Fish., 1915, Prov. Brit. Col., 24-25.
Sockeye; spring; spawning period - approx., no exact dates; distribution; Smith Inlet, B.C.
- Stone, Arthur W. 1917a
The spawning beds of Rivers Inlet. Rep. Comm. Fish., 1916, Prov. Brit. Col., 22-24.
Sockeye; coho; spring; Rivers Inlet, B.C.; spawning period-approx., no exact dates; distribution.
- Stone, Arthur W. 1917b
The spawning grounds of Smith Inlet. Rep. Comm. Fish., 1916, Prov. Brit. Col., 25-26.
Sockeye; spring; Smith Inlet, B.C.; spawning period - no exact dates; distribution.

- Stone, Arthur J. 1917b
The spawning grounds of Smith Inlet.
Rep. Comm. Fish., 1916, Prov. Brit.
Col., 25-26.
Sockeye; spring; Smith Inlet, B.C.;
spawning period - no exact dates;
distribution.
- Stone, Arthur J. 1918a
The spawning beds of Rivers Inlet,
Rep. Comm. Fish., 1917, Prov. Brit.
Col., 25-28.
Sockeye; spring; spawning period;
distribution.
- Stone, Arthur J. 1918b
The spawning beds of Smith Inlet.
Rep. Comm. Fish., 1917, Prov. Brit.
Col., 29-30.
Sockeye; coho; Smith Inlet, B.C.;
spawning period - approx., - no
exact dates; distribution.
- Stone, Arthur J. 1919
The spawning beds of Rivers Inlet.
Rep. Comm. Fish., 1918, Prov. Brit.
Col., 21-23.
Sockeye; spring; coho; humpback River
Inlet; spawning period - approx., no
exact dates; distribution.
- Stone, Arthur J. 1920a
The spawning beds of Rivers Inlet.
Rep. Comm. Fish., 1919, Prov. Brit.
Col., 24-25.
Sockeye; Rivers Inlet, B.C.; spawning
period - approx., no exact dates;
distribution.
- Stone, Arthur J. 1920b
The spawning beds of Smith Inlet.
Rep. Comm. Fish., 1919, Prov. Brit. Col.,
27-28.
- Sockeye; coho; humpback; dog; Smith
Inlet, B.C.; spawning period - approx.,
no exact dates; distribution.
- Stone, Arthur J. 1921a
The spawning beds of Rivers Inlet.
Rep. Comm. Fish., 1920, Prov. Brit.
Col., 15-17.
Sockeye; spring; coho; dog; Rivers
Inlet, B.C.; spawning period - approx.,
no exact dates; distribution.
- Stone, Arthur J. 1921b
The spawning beds of Smith Inlet.
Rep. Comm. Fish., 1920, Prov. Brit.
Col., 16-19.
Sockeye; coho; Smith Inlet, B.C.;
spawning period - approx., no exact
dates; distribution.
- Stone, Arthur J. 1922a
The spawning beds of Rivers Inlet.
Rep. Comm. Fish., 1921, Prov. Brit.
Col., 71-76.
Sockeye; spring; coho; chum; Rivers
Inlet, B.C.; spawning period - approx.,
no exact dates; distribution.
- Stone, Arthur J. 1922b
The spawning beds of Smith Inlet. Rep.
Comm. Fish., 1921, Prov. Brit. Col.,
73.
Sockeye; Smith Inlet, B.C.; spawning
period - approx., no exact dates;
distribution.
- Stone, Arthur J. 1923a
The spawning beds of Rivers Inlet.
Rep. Comm. Fish., 1922, Prov. Brit.
Col., 61-63.
Sockeye; coho; Rivers Inlet, B.C.;
spawning period - approx., no exact
dates; distribution.

- Stone, Arthur J. 1923b
The spawning beds of Smith Inlet.
Rep. Comm. Fish., 1922, Prov. Brit.
Col., 59-60.
Sockeye; spring; Smith Inlet, B.C.;
spawning period - approx., no dates given;
distribution.
- Stone, Arthur J. 1924a
The spawning beds of Rivers Inlet.
Rep. Comm. Fish., 1923, Prov. Brit.
Col., 50-52.
Sockeye; spring; coho; Rivers Inlet, B.C.;
spawning period - approx., no exact
dates; distribution.
- Stone, Arthur J. 1924b
The spawning beds of Smith Inlet.
Rep. Comm. Fish., 1923, Prov. Brit.
Col., 49.
Sockeye; spring; coho; Smith Inlet,
B.C.; spawning period - approx.,
no exact dates; distribution.
- Stone, Arthur J. 1925a
The spawning beds of Rivers Inlet.
Rep. Comm. Fish., 1924, Prov.
Brit. Col., 46-48.
Sockeye; coho; spring; dog; Rivers
Inlet, B.C.; distribution;
spawning period - approx.
- Stone, Arthur J. 1925b
The spawning beds of Smith Inlet. Rep.
Comm. Fish., 1924, Prov. Brit. Col.,
49.
Sockeye; spring; coho; spawning
period - approx., no exact dates;
distribution.
- Stone, Arthur J. 1926a
The spawning beds of Rivers Inlet.
Rep. Comm. Fish., 1925, Prov. Brit.
Col., 47-49.
- Sockeye; coho; Rivers Inlet, B.C.;
spawning period - approx., no exact
dates; distribution.
- Stone, Arthur W. 1926b
The spawning beds of Smith Inlet,
Rep. Comm. Fish., 1925, Prov. Brit.
Col., 50-51.
Sockeye; shum; pink; Smith Inlet, B.C.;
spawning activity, no dates; distrib-
ution.
- Stone, Arthur W. 1927a
The spawning beds of Rivers Inlet.
Rep. Comm. Fish., 1926, Prov. Brit.
Col., 65-67.
Sockeye; coho; spring; chum; Rivers
Inlet; spawning period -- approx.,
dates only; distribution.
- Stone, Arthur W. 1927b
The spawning beds of Smith Inlet.
Rep. Comm. Fish., 1926, Prov. Brit.
Col., 68-69.
Sockeye; coho; humpback; chum;
Smith Inlet; spawning period;
distribution.
- Stone, Arthur J. 1928a
The spawning beds of Rivers Inlet.
Rep. Comm. Fish., 1927, Prov. Brit.
Col., 43-45.
Sockeye; spring; coho; spawning
period --approx., no exact dates; distr-
ibution; sex ratios; weight at time
of return.

- Stone, Arthur J. 1923b
The spawning beds of Smith Inlet.
Rep. Comm. Fish., 1927, Prov. Brit.
Col., 46-47.
Sockeye; spring; coho; Smith Inlet;
spawning period - approx., no exact
dates; sex ratios; distribution;
weight at time of return (approx.)
- Stone, Arthur W. 1929a
The spawning beds of Rivers Inlet.
Rep. Comm. Fish., 1928, Prov. Brit.
Col., 46-48.
Sockeye; coho; spring; humpback; chum;
Rivers Inlet; spawning period - approx.,
no exact dates; sex ratios; distribution.
- Stone, Arthur J. 1929b
The spawning beds of Smith Inlet.
Rep. Comm. Fish., 1928, Prov. Brit.
Col., 49.
Sockeye; spring; coho; humpback;
Smith Inlet; spawning period;
distribution.
- Stone, Arthur J. 1920a
The spawning beds of Rivers Inlet.
Rep. Comm. Fish., 1929, Prov. Brit.
Col., 49-51.
Sockeye; spring; Rivers Inlet;
spawning period - approx., no
exact dates; distribution.
- Stone, Arthur J. 1920b
The spawning beds of Smith Inlet.
Rep. Comm. Fish., 1929, Prov. Brit.
Col., 52-54.
Sockeye; spring; coho; Smith Inlet,
B.C.; approx., no exact dates;
distribution.
- Stone, Arthur J. 1931a
The spawning beds of Rivers Inlet.
Rep. Comm. Fish., 1930, Prov. Brit.
Col., 46-48.
- Sockeye; spring; Rivers Inlet;
spawning period - approx., no exact
dates; distribution; sex ratios.
- Stone, Arthur W. 1931b
The spawning beds of Smith Inlet.
Rep. Comm. Fish., 1930, Prov. Brit.
Col., 49-50.
Sockeye; spring; coho; pink; chum;
Smith Inlet, B.C.; spawning period
-- approx., no exact dates;
distribution.
- Stone, Arthur W. 1932a
The spawning beds of Rivers Inlet.
Rep. Comm. Fish., 1931, Prov. Brit.
Col., 40-42.
Sockeye; spring; chum; Rivers Inlet,
B.C.; spawning period --approx.;
distribution.
- Stone, Arthur W. 1932b
The spawning beds of Smith Inlet.
Rep. Comm. Fish., 1931, Prov. Brit.
Col., 43-44.
Sockeye; spring; coho; Smith Inlet,
B.C.; spawning period - approx;
distribution.
- Stone, Livingston 1874a
On the salmon fisheries of the
Sacramento River. Rep. Commissioner
for 1872 and 1873, U.S. Comm. Fish
and Fisheries, Part II, 374-379.
Sacramento salmon; Sacramento R.;
time species migrates upstream.
- Stone, Livingston 1874b
Report of operations during 1872
at the United States salmon-hatching
establishment on the McCloud River,
and on the California Salmonidae
generally; with a list of specimens
collected. Rep. Commr. for 1872
and 1873, U.S. Comm. Fish & Fish.,
II: 168-215.

Sacramento salmon, dog salmon, dog-toothed salmon; Sacramento R., McCloud R., Calif.; spawning period; distribution; time species migrates upstream; size of species at time of return; time species returns from ocean to stream mouth; distance traveled upstream; time of seaward migration --p. 182, approx.; sexual dimorphism; movements in ocean; age groups (grilse); food and feeding habits --postspawning behavior--death; spawning behavior; time eggs hatch; parasites; color; specimen No. 106--may be different species; intro. and acclim.

Stone, Livingston 1876a

Report of operations in California in 1873. Rep. Commr. for 1873-74 and 1874-75., U.S. Comm. Fish & Fish., Part III, 377-429.

California salmon; McCloud R., Calif. size of species at time of return; spawning period; intro. & acclim.: N.J., Pa., N.Y., Conn., N.H., Mass., Me., Utah., Mich.

Stone, Livingston 1876b

Report of operations during 1874 at the United States Salmon hatching establishment on the McCloud River, Calif. Rep. Commr. for 1873-74 and 1874-75, U.S. Comm. Fish & Fish., Part III, 437-470.

California salmon; intro. & acclim.: Utah; Iowa; Minn.; Mich.; N.Y.; Conn.; Penn.; Md.; R.I.; Ontario, Canada; Me.; Mass.; Col.; Ill.; Va.; New Zealand; spawning period, p. 470.

Stone, Livingston 1876a

Operations of the McCloud River in salmon breeding, in 1875. Rep. Commr. for 1875-76, U.S. Comm. Fish & Fish., Part IV: 921-936.

Salmo quinnat, California salmon; Quinnault (Indian name); square tailed salmon, Indian name Hwanig, p. 932; intro. & acclim.: Mass., Conn., R.I., N.Y., N. J., Penn., Md., Va., Mich., Ill., Wis., Iowa, Col., Utah, Canada, New Zealand.

Stone, Livingston 1878b

Operations on the McCloud River on salmon breeding in 1876. Rep. Commr. for 1875-76, U.S. Comm. Fish & Fish., Part IV: 935-958.

California salmon; McCloud R., Calif.; spawning period; intro. & acclim.: Penn., Wisc., Ill., Utah., Mich., Ky., Md., Minn., Conn., Mass., Tenn., N.Y., Sandwich Is., New Zealand.

Stone, Livingston 1878c

The salmon fisheries of the Columbia River. Rep. Commr. for 1875-76, U.S. Comm. Fish & Fish., Part IV: 801-823.

Salmo quinnat, California salmon, chinook, tyee, common salmon of the Columbia; Salmo proteus, humpbacked; Salmo scouleri, hooknosed; Salmo canis, dog; Salmo truncatus, hardhead; Columbia R., time species migrates upstream; size of species at time of return; sexual dimorphism; time species returns from ocean to stream mouth; postspawning behavior--death; distance traveled upstream; food and feeding habits; nature of spawning site; spawning behavior.

Stone, Livingston 1879a

Report of operations at the salmon-hatching station on the Clackamas R., Oregon, in 1877. Rep. Commr. for 1877, U.S. Comm. Fish & Fish., Part V: 782-796.

Salmo quinnat, chinook; Clackamas R., Ore.; spawning period.

Stone, Livingston

1879b

Report of operations at the U.S. salmon hatching station on the McCloud R., Calif., in 1877. Rep. Commr. for 1877, U.S. Comm. Fish & Fish., 797-810.

Calif. salmon; McCloud River, Calif.; intro & acclim.: Ill., Iowa, Kan., Ky., Mass., Md., Minn., Mich., N.J., N. Y., N. H., Neb., Ohio, Penn., Va., Wisc., N.C., Prussia, Germany, Netherlands, England, France, Canada, Australia, New Zealand, Ore., Calif.

Stone, Livingston

1880

Report of operations at the U.S. salmon hatching station on the McCloud R., Calif., in 1878. Rep. Commr. for 1878, U.S. Comm. Fish & Fish., 741-770.

Calif. salmon; McCloud R., Calif.; spawning period; intro. & acclim.: Ill., Iowa, Kan., Me., Md., Mass., Mich., Minn., Mo., Neb., Nev., N.H., N. J., N.Y., N.C., Ohio, Penn., R.I., Utah, Va., W.Va., Wisc., Canada, England, France Holland, Germany, New Zealand; weight of species at time of return.

Stone, Livingston

1882

Report of operations at the U.S. salmon breeding station of the McCloud River, California, during the season of 1879. Rep. Commr. for 1879, U.S. Comm. Fish & Fish., 695-702.

California salmon, McCloud R., Calif., intro. & acclim.: Iowa, Kans., Md., Minn., Neb., N.J., N.C., Ohio, Penn., Utah, Va., W.Va., Wisc., Netherlands, New South Wales, France, Germany, Canada, N.Y.

Stone, Livingston

1883a

Account of operations at the McCloud River fish-breeding stations of the United States Fish Commission from 1872-1882 inclusive. Bull. U.S. Fish Comm.. 2: 217-226.

Salmo quinnat; Oncorhynchus choueika; Calif; color; weight of species at time of return; spawning period; time species migrates upstream; intro. & acclim.

Stone, Livingston

1883b

Report of operations at the U.S. salmon hatching station on the McCloud R., Calif., during the season of 1880, Rep. Commr. for 1880, U.S. Comm. Fish & Fish., 597-612.

Calif. salmon; McCloud R., Calif.; spawning period; intro. & acclim.: Ill., Kan., Md., Mo., Minn., Neb., N.Y., N. J., N.C., S.C., W. Va., Canada., France, Germany, Holland, Me., Mich., Nev., N.H.

Stone, Livingston

1883c

Scarcity of salmon in the Little Spokane and other streams on the Pacific Coast. Bull. U.S. Fish Comm., 3: 176-177.

Salmon; Snake R.; distribution.

Stone, Livingston

1884a

The quinnat or California salmon -- Oncorhynchus choueika. (In: The Fisheries and Fishery Industries of the United States by George Brown Goode and others, Section I, Text, 179-185.)

O. choueika, quinnat, California salmon, choueicha, tschawytcha, sahkey (by the Kuskum, Fraser R.), Columbia River salmon, tyee (chinook jargon), chinook; O. quinnat, Salmo choueika, O. choueika, Fario arcyreus, Salmo arcyreus, Salmo warreni; weight at time of return; time species migrates upstream; type of stream chosen; distance traveled upstream; range; feeding habits, ocean & stream; synonymy; distribution; behavior of fry; spawning behavior; sexual dimorphism--body changes; spawning period; figured.

The report of operations at the U.S salmon breeding station on the McCloud R. Calif., during the season of 1881. Rep. Commr. for 1881, U.S. Comm. Fish & Fish., 1063-1078.

Calif. salmon; McCloud R., Calif.; intro. & acclim.: Md., Minn., Nebr., N.H., Nev., Penn., S.C., W. Va.; Canada, N.J.

Weights of salmon taken at McCloud River station in 1880. Bull. U.S. Fish Comm., 4: 178-179.

McCloud R. salmon; McCloud R., Calif.; weight at time of return.

History of operations at the Fish-Hatching Stations on the McCloud River, California; from the beginning, August, 1872, to October, 1884. Bull. U.S. Fish Comm., 5: 28-31

intro. & acclim.: Atlantic Coast of U.S.A. and Europe.

The artificial propagation of salmon on the Pacific Coast of the United States with notes on the Natural history of the quinnat salmon. Bull. U.S. Fish Comm., 16: 203-235.

Oncorhynchus tshawytscha, quinnat, noolh; O. nerka, blueback; O. kisutch, silver; O. keta, dog; O. gorbuscha, humpback; O. nerka; behavior of migrating young; post-spawning behavior (death after spawning); intro. & acclim.: eastern U.S., Australia, New Zealand, Prussia, Netherlands, England, France, Canada; history of common names; figured-adults & young; Battle Creek, Calif.; description; time species migrates upstream; range; feeding habits & freshwater; size of species at time of return; rate of travel upstream; spawning period; sexual dimorphism; egg counts; egg size; behavior of alevins.

Description of several new species of Salmonidae from the northwest coast of America. Ann. Lyceum Nat. Hist., N.Y., 7: 1-10.

Not abstracted.

On the North American species of salmon and trout. Rep. Commr., for 1872 and 1873, U.S. Comm. Fish & Fish., Part II, 91-160.

Oncorhynchus; Salmo scouleri Richardson, skowitz, hooknosed salmon, fall salmon, kutshkuss; Salmo proteus Pallas, humpbacked salmon; Salmo cooperi Suckley, little red salmon, Coopers salmon, ta-ah-nia; Salmo dermatinus Richardson; tleukh-ko (Bering Sea); Salmo consuetus Richardson; Salmo canis, dog salmon, spotted salmon, le kai salmon; Salmo quinnat, Richardson, California salmon, yomutsh, satsup; kwitshia; Salmo confluentus, Suckley, tsah-kwai, towatl salmon; Salmo aurora, Girard, red char, salmon; Salmo argyreus Girard; Salmo paucidens, Richardson, weaktoothed salmon; Salmo tsnupitch Richardson, white salmon; Salmo truncatus Suckley, short-tailed salmon, square-tailed salmon; Salmo richardi Suckley, Richards salmon; suk-kegh salmon; Salmo campbelli Suckley, Campbell's salmon; Salmo rossii Richardson, Ross's salmon (Arctic Ocean, Boothia Felix); Salmo hearnei, Richardson, coppermine salmon (Arctic); Salmo kennerlyi, Suckley, tsi-mia, Kennerly's trout; Salmo warreni, Suckley, Warren's trout; Salmo gibbsii, Suckley, Columbia salmon trout; description; synonymy; distribution; counts and measurements; color; time species migrates upstream; sexual dimorphism; distance traveled upstream; size at time of return.

Sugano, Susumu

1936a

The depth and the distance from shore of the routes of migration of salmon. (In Japanese with English summary). Bull. Jap. Soc. Sci. Fish., 1(5): 318-320.

Not abstracted.

Sugano, Susumu

1936b

Immigration of salmon to a fishing ground on the west coast of Kamchatka in relation to the hydrographical conditions. (In Japanese with English summary). Bull. Jap. Soc. Sci. Fish., 4(6): 407-408.

Not abstracted.

Sumner, Francis B.

1906

The Physiological Effects upon Fishes of Changes in the Density and Salinity of Water. Bull. U.S. Bur. Fish., 25: 53-103.

Oncorhynchus tshawytscha, chinook; physiology; change in weight when transferred from fresh to salt water;

Sumner, Francis H.

1953

Migrations of salmonids in Sand Creek, Oregon. Trans. Amer. Fish. Soc., 82: 139-150.

Oncorhynchus kisutch, coho; O. keta, chum; Oregon; spawning period; time of seaward migration of fry & fingerlings; recapture data.

Sumner, Francis H., and Smith, Osgood R.

1940

Hydraulic mining and debris dams in relation to fish life in the American and Yuba Rivers of California. Cal. Fish & Game, 26: 2-22.

O. tshawytscha, chinook; distribution; lower American & Yuba River; time species migrates upstream; type of stream chosen; distance traveled upstream; spawning period; nature of spawning site; food & feeding habits.

-T-

Taguchi, K.

1948

On the scale and stock of red salmon, Oncorhynchus nerka migrating to the Kamchatka. (In Japanese with English summary). Bull. Jap. Soc. Sci. Fish., 13(4): 158-160.

Not abstracted.

Taliev, D. N.

1932

A new form of Oncorhynchus. (In Russian with English summary). Doklady Akademii Nauk SSSR, Ser. A (C.R. Acad. Sci., USSR, Ser. A), 1932, no. 14: 346-351.

Not abstracted.

- Taft, A.C. 1937a
Marked silver salmon from Waddell Creek, caught near Fort Bragg. Cal. Fish & Game, 23(2): 177-178.
- O. kisutch, silver; Waddell Cr., Fort Bragg, Calif.; marking & recapture data; movements in ocean.
- Taft, A.C. 1937b
A red salmon taken in the Klamath R. Cal. Fish & Game, 23(2): 178.
- O. nerka, red, sockeye, blueback; Klamath R.; description; counts & measurements; color; comparisons; length at time of return.
- Taft, A.C. 1938
Pink salmon in California. Cal. Fish & Game, 24(2): 197-198.
- O. gorbuscha, pink, humpback; Ten Mile R., Garcia R., Calif.; description; color; range; distribution; size of species at time of return; nature of spawning site; sexual dimorphism, body changes; spawning period.
- Taft, A.C., and Shapovalov, Leo 1938
Homing instinct and straying among steelhead trout and silver salmon. Cal. Fish & Game. 24(2): 118-125, figs., 29-40, 3 tables.
- O. kisutch, silver; Scott Cr., Waddell Cr., Klamath R., Calif.; marking & recapture data, migration routes; home stream theory.
- Takayasu, Mitsugu, 1955
Kondo, Kenzo, Ohigashi, Shinichi, and Kuroda, Kunio
Limnological studies on the lakes of Kunasiri Island. Sci. Repts. Hokkaido
- Takayasu, Mitsugu, et al. (cont.) 1955
Fish Hatchery, 10(1-2): 181-216, 17 figs., 8 plates, 26 tables. Japanese with English abstract.
- O. keta; O. gorbuscha; O. masou; Kunasiri Is., Japan; distribution.
- Talbot, G.B. 1950
A biological study of the effectiveness of the Hell's Gate fishways. Bull. 3, Internat'l Pac. Salmon Fish. Comm., 1-80, 39 figs., 7 tables.
- sockeye; Fraser R.; distribution (detailed map).
- Tanaka, Shigeho 1931
On the distribution of fishes in Japanese waters. Jr. Faculty Sci., Imperial Univ. Tokyo, 3(part 1): 2-90, 3 plates.
- O. milktschitsch; L. Suwa, Biwa, Chuzenji, Japan; Salmo kisutch, S. tschawytscha (sic); O. masou, (Salmo masou); S. macrostomus; S. formosanus; O. ishikawae; O. rhodurus; distribution.
- Tanner, Z.L., and others 1890
Explorations of the fishing grounds of Alaska, Washington Territory, and Oregon, during 1888, by the U.S. Fish Commission steamer albatross. Bull. U.S. Fish Comm., 8: 1-95, 10 figs.
- O. gorbuscha, humpback; O. keta, dog; Humboldt Harbor, Popoff Is.; O. nerka, suk-kegh; Alert Bay, Vancouver Is.; O. chouicha, Columbia; O. kisutch, silver; table showing location and depth of salmon and other fish caught; size at time of return.

- Tchernavin, V. 1937
Preliminary account of the breeding changes in the skulls of Salmo and Oncorhynchus. Proc. Linnean Soc. London, 1937, session 14: 11-19.
- Tchernavin, V. 1938
Changes in the salmon skull. Trans. Zool. Soc. London, 24(part 2): 103-184, 17 text-figs., 5 tables, 5 plates, 8 keys, 12 diagrams.
- O. gorbuscha, humpback; O. keta, dog; O. tschawytcha (sic); O. masu; Amur R.; osteology; description; counts & measurements; comparisons, keys.
- Tchernavin, V. 1939
The origin of salmon. Salm. & Trout Mag., 120-140, 1 table, 4 maps.
- Oncorhynchus; freshwater origin; life history and distribution compared with those of Salmo.
- Terao, Arata 1935
Cross between the cod, Gadus macrocephalus Tilesius, and the salmon O. keta (Walbaum). J. Jap. Genetics, 9(3): 188. Japanese.
- Not abstracted.
- Thompson, Seton H. 1931
Salmon-tagging experiments in Alaska, 1929. Bull. U.S. Bur. Fish., 46: 177-195, 6 figs., 12 tables.
- red; pink; chum; coho; king; Prince William Sound, Cook Inlet, Gulf of Alaska; tagging & recapture data, migration routes; time species returns from ocean to stream mouth.
- Thompson, W.F. 1938
Report on the investigations of the International Pacific Salmon Fisheries Commission on the Fraser R. sockeye for the year 1938. Ann. Rept. Internat'l Pac. Salmon Fish. Comm., 15-21.
- sockeye; Fraser R., B.C.; tagging & recapture data.
- Thompson, W.F. 1939
Report on the investigations of the International Pacific Salmon Fisheries Commission on the Fraser R. sockeye for the year 1938. Ann. Rept. International Pac. Salmon Fish. Comm., 6-12.
- sockeye; Fraser R., B.C.; tagging & recapture data.
- Thompson, W.F. 1940
Report on the investigations of the International Pacific Salmon Fisheries Commission on the Fraser R. sockeye for the year 1940. Ann. Rept. Internat'l Pac. Salmon Fish. Comm., 5-12.
- sockeye; Puget Sound, Gulf of Georgia; tagging & recapture data.
- Thompson, W.F. 1941
Report on the investigations of the International Pacific Salmon Fisheries Commission on the Fraser R. sockeye for year 1941. Ann. Rept. Internat'l Pac. Salmon Fish. Comm., 6-13, 1 table.
- sockeye; Fraser R.; tagging & recapture data; sex ratios; time species migrates upstream; age at time of return.

- Thompson, W.F. 1942
Report on the investigations of the International Pacific Salmon Fisheries Commission on the Fraser R. sockeye for the year 1942, 6-15, 1 table, 4 photos.

sockeye; Fraser R., B.C.; tagging & recapture data; time species migrates upstream; age at time of return.
- Thompson, W.F. 1945a
Effect of the obstruction at Hell's Gate on the sockeye salmon of the Fraser R., Bull. 1, Internat'l Pac. Salmon Fish. Comm., 1-175, 58 figs, 24 tables.

O. nerka, sockeye; Fraser R., Can.; type of stream chosen; behavior of fry & fingerlings; racial analysis, comments; age at time of return; tagging & recapture data, races.
- Thompson, W.F. 1945b
Report of the International Pacific Salmon Fisheries Commission for the year 1945. Ann. Rept. Internat'l Pac. Salmon Fish. Comm., 3-53, 7 tables, 14 photos, 1 map (back flap).

sockeye; Juan de Fuca Strait, Fraser R.; tagging & recapture data.
- Thomson, John H. 1882
Some results of the artificial propagation of Maine and California salmon in New England and Canada recorded in the years 1879 & 1880. Bull. U.S. Fish Comm., 1: 270-277.

California salmon; intro. & acclim.: New Bedford, Mass; St. Croix R., New Brunswick.
- Titcomb, John W. 1904
Report on the propagation and distribution of food fishes. Rept. Comm'er for 1902. U.S. Comm. Fish & Fish., 22-110.

quinnat; silver; blueback; Wash., Ore., Calif.; spawning period; intro. & acclim.: Iowa.
- Titcomb, John W. 1905a
Report on the propagation and distribution of food fishes. Rept. Comm'er for 1903. U.S. Comm. Fish & Fish., 39-74.

quinnat; intro. & acclim.: Arkansas, Iowa, Mo., Tasmania.
- Titcomb, John W. 1905b
Report on the propagation and distribution of food fishes. Rept. Comm'er for 1904, U.S. Comm. Fish & Fish., 25-80.

quinnat; intro. & acclim.: Ark., Maine, Missouri, New Hampshire, New York, New Zealand.
- Takahisa, Mikusa, and Takeshi, Ito 1934
On the artificial propagation of salmon, trout, and other kinds of fish in Japan. Proc. Fifth Sci. Cong., 1933, 5: 3599-3600, 1 table.

O. keta, sake; O. nerka, benimasu; O. gorbuscha, karafuto-masu; O. masou, sakura-masu; O. tschawytscha (sic), masunosuke; Lake Biwa, Ishikari R., Japan; landlocked masu; time species migrates upstream.
- Toner, G.C. 1933
Annotated list of fishes of Georgian Bay. Copeia, 1933, 3, 133-140.

O. tschawytscha (sic); Georgian Bay; listed.

Townsend, C.H.

1899

Report of the Division of Statistics and Methods of the Fisheries. Rept. Comm'ier for 1898, U.S. Comm. Fish & Fish., cxlvii-clxxv.

king, quinnat; Yukon R., Alaska; distance travelled upstream; time species migrates upstream; size at time of return.

Townsend, C.H.

1904

Report of the division of statistics and methods of the fisheries. Rept. Comm'ier for 1902, U.S. Comm. Fish & Fish., 143-160.

Pacific salmon; Monterey Bay, Pacific Coast; distribution; movements in ocean - time of arrival at Monterey Bay.

Townsend, Lawrence D.

1944

Variation in the number of pyloric caeca and other numerical characters in chinook salmon and in trout. Copeia, No. 1, 52-54.

chinook; racial analysis from pyloric caeca.

Tuge, Hideomi

1937

The reactions of the melanophores of emeryonic and larval salmon, Oncorhynchus keta. Sci. Rept. Tohoku Imp. Univ., Sendai, Japan, Ser. 4 (Biology), 12(1): 19-44. English.

Not abstracted.

Tulian, E.A.

1910a

Acclimatization of American fishes in Argentina. Bull. U.S. Bur. Fish., 27(part 2): 955-965, tables.

O. tschawytscha (sic), quinnat; O. nerka, sockeye; O. kisutch; Argentina; intro. & acclim.; distribution.

Tulian, E.A.

1910b

Five years progress in fish culture in Argentina. Trans. Amer. Fish. Soc., 40: 415-422.

quinnat; blueback; silver; intro. & acclim.

--U--

U.S. Fish & Wildlife Service

1878

Correspondence relating to the exportation of fishes and fish-hatching apparatus to New Zealand, Germany, etc. Rept. Comm'ier for 1875-1876, U.S. Comm. Fish & Fish. Part 4, 959-1024.

California salmon, salmo (Oncorhynchus) lycaodon; introduction & acclim.: New Zealand, Germany.

U.S. Fish & Wildlife Service

1880a

Correspondence connected with the transmission of eggs of the quinnat salmon and whitefish to Australia and New Zealand, 1877, 1878, and prior years. Rept. Comm'ier for 1878, U.S. Comm. Fish & Fish., 825-905.

Salmo quinnat, Calif. Salmon; intro. & acclim.: Australia, New Zealand.

U.S. Fish & Wildlife Service

1880b

Correspondence connected with the transmission of eggs of the quinnat salmon and other salmonidae to European countries in 1878 and prior years. Rept. Comm'ier for 1878, U.S. Comm. Fish & Fish., 907-924.

Salmo quinnat, Calif. salmon; intro. & acclim.: Germany, Netherlands.

Summary of reports for 1878, by state fish commissioners re the increase of food fishes by artificial propagation. Rept. Comm'r for 1878, U.S. Comm. Fish & Fish., 925-943.

Salmo quinnat, Calif. salmon; intro. & acclim.

Memorandum of some results of the artificial propagation and planting of fish due mainly to the efforts of the United States Fish Commission. Bull. U.S. Fish. Comm. for 1881, 1: 208-215.

O. chouicha, quinnat, California salmon; Intro. & acclim.: Lake Ontario, Lake Michigan, Green Bay, Mich.

American fish in New Zealand. Bull. U.S. Fish Comm. for 1886, 6: 304.

Salmo quinnat, California salmon; intro. & acclim.: New Zealand; weight at time of return

The distribution of fish and fish eggs during the fiscal year 1908. Rept. U.S. Bur. Fish. for 1908, Bur. Fish. Doc. No. 644, 1-93.

O. tschawytscha (sic), king, chinook, quinnat; O. kisutch, silver, coho; O. nerka, blueback, redbfish, sockeye; O. gorbuscha, humpback; intro. & acclim.: New Hampshire, New York, Virginia, Argentina, Penna., Maine.

The distribution of fish and fish eggs during the fiscal year 1909. Rept. U.S. Bur. Fish for 1909. Fish Doc. No. 728, 1-103.

O. tschawytscha (sic), chinook, king, quinnat; O. kisutch, silver, coho; O. nerka, blueback, redbfish, sockeye; O. gorbuscha, humpback; intro. & acclim.: Mass., Michigan, New Hampshire, New York, Argentina, Penna.

The distribution of fish and fish eggs during the fiscal year 1910. Rept. U.S. Bur. Fish. for 1910, Bur. Fish. Doc. No. 740, 1-112.

O. tschawytscha, (sic), chinook, king, quinnat; O. kisutch, silver, coho; O. nerka, blueback, redbfish, sockeye; O. gorbuscha, humpback; intro. & acclim.: Penna., Argentina, New York, New Hampshire.

The distribution of fish and fish eggs during the fiscal year 1912. Rept. Comm'r Fish for 1912, U.S. Bur. Fish. Doc. No. 770, 1-108.

O. tschawytscha (sic), chinook, king, quinnat; O. kisutch, silver, coho; O. nerka, blueback, redbfish, sockeye; O. gorbuscha, humpback; O. keta, dog; intro. & acclim.: New York, Vermont, Mass., Michigan, Minnesota, New Hampshire.

Notes from the Div. of Fish Culture, U.S. Department of Commerce. Fish. Serv. Bull., No. 113, Dec. 1., 5-7.

sockeye; silver; Ozette L., Wash.; counts of migrant adults; time species migrates upstream.

U.S. Fish & Wildlife Service 1931-1940

Counts of salmon at weirs in Alaska.
U.S. Dept. Commerce, Fish. Serv. Bull.
pink; coho; red; chum; king; Alaska;
counts of migrant adults: (various
paginations).

U.S. Fish & Wildlife Service 1935

Red salmon found in relatively deep
water in Karluk Lake. U.S. Dept.
Commerce Fish. Serv. Bull. 246,
Nov., 4-5.

silver; red (landlocked); Karluk L.,
Alaska; behavior of fry & adult
salmon.

U.S. Fish & Wildlife Service 1938-1940

Salmon counts at Bonneville ladders.
U.S. Dept. Commerce, Fish Serv. Bull.

blueback; chinook; silver; Bonneville
Dam, Ore.; counts of migrant adults:
various paginations.

U.S. Fish & Wildlife Service 1939d

Salmon tagging on Columbia River.

U.S. Dept. Commerce, Fish. Serv. Bull.
286, March 1, 1-2.

chinook; Columbia R.; tagging &
recapture data, migration routes;
distribution.

U.S. Fish & Wildlife Service 1945

Pacific salmon U.S. Dept. Int. FWS,
Fish. Leaflet 14, rev. Feb. 1945,
1-8, 2 tables.

O. tschawytscha (sic), chinook, king;
O. kisutch, silver, coho; O. gorbuscha,
pink, humpback; O. keta, chum, dog; O.
nerka, red, sockeye, blueback; O. masu,
"masu"; range; food; home stream theory;
distribution; time species migrates up-
stream; age at time of return; nature of

U.S. Fish & Wildlife 1945
Service (cont.)

spawning site; time eggs hatch;
time young spend in freshwater;
size at time of return.

U.S. Foreign Economic 1945
Administration, Enemy Branch, Jap-
anese Fishing Industry, 1945.

250 pp., 9 figs., 72 tables.

O. tschawytscha (sic), king, chinook,
masunosuke; O. nerka, red, beni
sake, beni masu; O. kisutch, silver,
gin sake; O. gorbuscha, humpback,
pink, masu; O. keta, chum, dog,
sake; range; relative abundance;
time species migrates upstream.

--V--

Valery-Mayot, Prof. 1884

Acclimatization of Salmo quinnat
in France. Bull. U.S. Fish Comm.,
4: 138.

Salmo quinnat; intro. & acclim.:
France; distribution.

Van Cleve, Richard 1944

Report of Bureau of Marine Fisher-
ies. 38th Biennial Rept. Calif.
Div. Fish & Game, 1942-1944,
33-41, 7 tables.

Calif ; catch records; tagging &
recapture data; counts of migrant
adults.

Van Cleve, Richard 1945

A preliminary report on the fishery
resources of California in relation
to the Central Valley project.
Cal. Fish & Game, 31(2): 35-52,
figs., 13-15, 1 table.

silver; chinook; distribution; Central

- Van Cleve, Richard (cont.) 1945
Valley, Calif.; time species migrates upstream; type of stream chosen; distance travelled upstream; spawning period; nature of spawning site; time eggs hatch; time of seaward migration; time young spend in freshwater; length at time of seaward migration.
- Van Hyning, Jack M. 1951
The ocean salmon troll fishery of Oregon. Bull. 2, Pac. Marine Fish. Comm., 40-76, 19 figs., 10 tables.
O. tshawytscha (sic), chinook, King, spring; Oregon; O. kisutch, silver, coho; time species migrates upstream; distribution; marking & recapture data, migration routes, segregation of populations; time young spend in freshwater; rate of migration; growth rates from scale studies and direct measurement; age from scale studies; catch records; length at time of return.
- Van Hyning, Jack 1954
Unusual salmon migrations. Fish Comm. Oregon, Res. Briefs, 5(1): 38.
Not abstracted.
- Vaughan, Elizabeth 1942
Statistical review of the pink salmon trap fishery of southeastern Alaska. Spec. Sci. Rept. U.S. Fish & Wildlife Service, No. 17, 1-33, 59 figs.
pink; southeastern Alaska; general life history; trap catch records.
- Vaughan, Elizabeth 1947
Time of appearance of pink salmon runs in Southeastern Alaska. Copeia, No. 1, 40-50, 4 text-figs.
O. gorbuscha, pink; southeastern Alaska; time species migrates into streams; age at time of return; time eggs hatch; time of seaward migration.
- Verhoeven, Leon A. 1952
A report to the salmon fishing industry of Alaska on the results of the 1947 tagging experiments. Mimeographed, 1-21, 35 figs., 4 tables.
all 5 species; Alaska; Oncorhynchus gorbuscha, pink, most abundant; behavior of pinks on spawning migration; mixing & segregation of races; home stream theory; time different races present in fishery; movements in saltwater.
- Vinciguerra, D. 1893
Oncorhynchus chouicha Walb. on its introduction in the Lake of Castel Gandolfo. Bull. Soc. Romana Zool., Italy, 2: 253-264.
Not abstracted.
- W--
- Wales, J.H. 1955a
Efficiency of chinook salmon spawning in Fall Creek, California. Trans. Amer. Fish. Soc., 84th Annual Meeting, 197-149, 2 figs., 6 tables.
O. tshawytscha (sic), chinook; O. gorbuscha; O. keta; O. nerka; O. kisutch; Fall Creek (tributary of Klamath R.). Calif.; time young spend in freshwater; time of seaward migration; behavior of fry & fingerlings; size at time of return.

- Males, J.H., and Wolf, H. 1955b
Three protozoan diseases of trout in California. Cal. Fish & Game, 41(4): 160-167.
- O. nerka Kennerlyi, kokame red; O. tshawytscha, king; O. kisutch, silver; distribution; internal parasites.
- Galford, Lionel A. 1931
Handbook of common commercial and game fishes of California. Fish. Bull., Cal. Fish & Game, Bull. No. 28, 1-161, 137 text-figs. (salmon, pp. 56-57).
- O. tshawytscha (sic), king, Sacramento R. salmon, chinook, grinnat, Columbia R. salmon, spring; O. kisutch, silver-sides, coho, silver; key; counts & measurements; size at time of return; figured; distribution.
- Wallis, Orthello L., and Bond, Carl E. 1950
Establishment of kokanee in Crater Lake, Oregon. J. Wildl. Mgt., 14(2): 190-193, 1 table.
Not abstracted.
- Ward, Henry B. 1908
Some points in the migration of Pacific Salmon as shown by its parasites. Trans. Amer. Fish. Soc., 37: 92-100.
- O. tshawytscha (sic), king; O. nerka, red; O. kisutch, coho, silver; O. gorbuscha, humpback; O. keta, dog, calico; parasites, internal & external.
- Ward, Henry B. 1909
Notes on the leaping of the Pacific salmon. Trans. Amer. Fish. Soc., 38: 163-167.
O. nerka, Alaska, red; leaping.
- Ward, Henry B. 1910
Notes on the leaping of the Pacific salmon. Trans. Amer. Fish. Soc. 39th Annual Meeting for 1909, 162-167.
O. nerka, Alaska salmon, red, pink; Alaska; leaping; distribution.
- Ward, Henry B. 1920a
Some features in the migration of the sockeye salmon and their practical significance. Trans. Amer. Fish. Soc., 50: 387-426.
O. nerka, sockeye, red, Alaska salmon; time species migrates upstream; type of stream chosen; distance travelled upstream.
- Ward, Henry B. 1920b
Special investigation of Copper River salmon fishery. Rept. Comm'r Fish. for 1919, U.S. Bur. Fish. Doc. No. 891, 119-141.
sockeye, red; silver; king; Copper R., Alaska; time species migrates upstream; spawning period; distribution.
- Ward, Henry B. 1939
Factors controlling salmon migration. The Migration and Conservation of Salmon, publication of Amer. Assoc. for Advancement of Sci., No. 8, 30-71.
O. nerka, red, sockeye; spring; pink; home stream theory; Intro. & acclim.: Baker L., Ash., Masset Inlet, etc.; marking & recapture data.

- Wardle, Robert Arnold 1932
The cestoda of Canadian fishes. I
The Pacific Coast region. Contrib.
Canad. Biol. Fish. N.S. 7: 231-243,
15 figs.
O. nerka kennerlyi; O. tschawytscha
(sic); O. misutch; parasites.
- Wardle, Robert Arnold 1933
The cestoda of Canadian Fishes. III.
Additions to the Pacific Coast fauna.
Contrib. Canad. Biol. Fish. N.S.
8: 77-87, 2 figs.
O. nerka; internal parasite,
Proteocephalus arcticus, on a finger-
ling; Cultus Lake.
- Warne, F. 1947
Salmon spawning report, British
Columbia, 1946. Rept. Prov. Fish.
Dept., 1946, Prov. Brit. Col.,
77-82.
sockeye; spring; coho; pink; chum;
Brit. Col.; distribution.
- Washington, State of 1935-1945
Annual Bull., Dept. Fisheries.
sockeye; pink; silver; chum; chinook;
Wash.; catch records; distribution;
(various paginations).
- Watanabe, Muneshige 1955
Some observations on the eggs of the
mature salmon (O. keta) in Hokkaido,
with special reference to the race of
salmon as characterized by the size of
their eggs. Sci. Repts. Hokkaido
Fish Hatchery, 10(1-2): 7-20, 4 figs.,
7 tables. Japanese with English
abstract, and headings.
O. keta, autumn salmon; Hokkaido, Japan;
racial analysis, from eggs;
- Watanabe, Nobuo 1954
A report on oceanographical inves-
tigations in the salmon fishing
grounds of the North Pacific, 1952
and 1953. English. Tokai Reg. Fish.
Res. Lab., Spec. Pub., No. 3,
1-5, 1 map.
Not abstracted.
- Weisel, George F. 1947
Presence of Oogonia and Oocytes in
spawned Pacific salmon. Copeia,
No. 3, 193-194, 1 text-fig.
O. nerka, sockeye; Flathead Lake,
Montana; histology (ovary).
- White, H.C., and 1938
Huntsman, A.G.
Is local behavior in salmon herit-
able: J. Fish. Res. Bd. Can.,
4: 1-18, 5 figs.
O. tschawytscha; home stream
theory.
- Whitehouse, F.C. 1919
Notes on some of the fishes of
Alberta and adjacent waters. Can.
Field-Natl., 35: 50-55.
O. kennerlyi, Kennerly's salmon,
little redfish; Brit. Col., Koote-
nay L., Christina L.; distribution.
- Whitmore, A.J. 1948
Salmon spawning report, British
Columbia, 1947. Rept. Prov. Fish.
Dept., 1947, Prov. Brit. Col.,
98-99.
sockeye; spring; coho; pink;
chum; Brit. Col.; distribution.

- Whitmore, A.J. 1950 Salmon spawning report, British Columbia, 1949. Rept. Prov. Fish. Dept. 1949, Prov. Brit. Col., 91-99. sockeye; coho; spring; pink; chum; Brit. Col.; distribution.
- Whitmore, A.J. 1951 Salmon spawning report, British Columbia, 1950. Rept. Prov. Fish. Dept. 1950, Prov. Brit. Col., 96-104. sockeye; spring; coho; pink; chum; Brit. Col.; distribution.
- Whitmore, A.J. 1952 Salmon spawning report, British Columbia, 1951. Rept. Prov. Fish. Dept. 1951, Prov. Brit. Col., 98-108. sockeye; spring; coho; pink; chum; Brit. Col.; distribution.
- Whitmore, A.J. 1953 Salmon spawning report, British Columbia, 1952. Rept. Prov. Fish. Dept., 1952, Prov. Brit. Col., 91-102. sockeye; spring; coho; chum; pink; Brit. Col.; distribution.
- Wickett, W. Percy 1951 The coho salmon population of Nile Creek. Progr. Rept. Pac. Coast Stas., Fish. Res. Bd. Can., No. 89, 38-69. O. kisutch, coho; Nile Creek, B.C.; counts of migrant adults; sex ratio; egg counts; time eggs hatch; description, of jaws.
- Wilcox, William A. 1898 Notes on the fisheries of the Pacific Coast in 1895. Rept. Comm. for 1896, U.S. Comm. Fish & Fish., 575-659. chinook; blueback; silver; dog; humpback; Pacific Coast; distribution; catch records by species in geographical detail; time species migrates upstream.
- Wilcox, William A. 1902 Notes on the fisheries on the Pacific Coast in 1899. Rept. Comm'er for 1901, U.S. Comm. Fish & Fish., 503-574. O. tschawytscha, chinook; quinnat; O. nerka, blueback, red; O. kisutch, silver; O. teta, dog; Pacific Coast; figured.
- Williamson, H. Chas. 1927 Pacific Salmon migration: Report of the tagging operations in 1925. Contrib. Canad. Biol. & Fish. N.S. 1927, 3: 265-306, 6 figs, 4 maps. O. tschawytscha, spring; O. nerka, sockeye; O. kisutch, silver; O. gorbuscha; figured; color; counts & measurements of young; distribution; racial analysis, comments (p. 280); West Coast Vancouver Is., Queen Charlotte Islands, Georgia Str.; weight of species at time of return; time species migrate upstream; movements in ocean; tagging & recapture data; food & feeding habits, saltwater; sea spawning suspected O. tschawytscha; time of day of capture, depth, etc.; egg size; flesh color; individuals migrating together; rate of travel.

- Williamson, H. Chas. 1929 Pacific salmon migration: report on the tagging operations in 1926, with additional returns from the operations of 1925. Contrib. Canad. Biol. & Fish. N.S. 1929, 4: 453-470, 3 maps, 4 tables.
- spring; coho; tagging & recapture data; time species return to stream mouth; West Coast Vancouver Is., Barclay Sound; racial analysis: "canal" fish that spawn in Alberni Canal; distribution; mention of possible survival after spawning of two sockeye; rate of travel.
- Williamson, H. Chas. 1930 Notes on food of spring salmon. Canad. Field Nat., 44(9): 204-204, 4 figs.
- Not abstracted.
- Williamson, H. Chas., and Clemens, W.A. 1932 Pacific salmon migration: the tagging operation at Quatsino and Kyuquot in 1927, with additional returns from the operations of 1925 and 1926. Bull. Biol. Bd. Can. No. 26, 1-16, 1 fig., 10 tables.
- spring; coho; Brit. Col.; tagging & recapture data; rate of travel; distribution; time adults arrive at stream mouth from ocean; instinct of association; comment on theory of migration; age at time of return; weight at time of return.
- Willis, Raymond A. 1954 The length of time that silver salmon spent before death on the spawning grounds at Spring Creek, Wilson River, in 1951-1952. Ore. Fish Comm. Res. Briefs, 5(1): 27-31, illus.
- Not abstracted.
- Wilmot, Samuel 1882a Introduction of California salmon into Ontario with remarks on the disappearance of Maine salmon from that province. Bull. U.S. Fish. Comm., 1: 347-349.
- California salmon; New Brunswick, Ontario; intro. & acclim.
- Wilmot, Samuel 1882b Remarks on the scarcity of male and grilse salmon in the rivers of Ontario, Canada. Bull. U.S. Fish. Comm., 1: 379-381.
- California salmon; Ontario; Europe; intro. & acclim.
- Wilson, Charles Branch 1912 Parasitic Copepods from Nanaimo, Brit. Columbia, including eight species new to science. Contrib. Canad. Biol. 1906-1910, 85-101, plates 2-3.
- O. kisutch, coho, silver; parasite, external, p. 93.
- Wilson, Charles Branch 1916 Copepod parasites of freshwater fishes and their economic relations to muscle glochidia. Bull. U.S. Bur. Fish., 34: 541-574, 1 table, plates 66-74.
- O. nerka, redfish; O. tshawytscha (sic), chinook; copepod parasites on gills for O. nerka; Achtheres ambloplitis, Big Payette Lake, Idaho, Salmincola falcata, Baker Lake, Wash., Salmincola californiensis, Big Payette Lake, Idaho; O. tshawytscha (sic), Salmincola beani, McCloud R., Cal. and Battle Creek, Colo.

- Wilson, Samuel 1878 The Californian salmon with an account of its introduction into Victoria. Melbourne, Sands & McDougall, printers, 1878, 131 pp.
- Not abstracted.
- Wisby, Warren J., and Hasler, Arthur D. 1954 Effect of olfactory occlusion on migrating silver salmon (O. kisutch). J. Fish. Res. Bd. Can., 11(4): 472-478, 2 figs., 2 tables.
- O. kisutch, silver, coho; home stream theory; figured.
- Wisley, William A. 1920 The spawning beds of Skeena River. Rept. Comm. Fish., 1919, Prov. Brit. Col., 29-31.
- sockeye; humpback; Skeena R., B.C.; spawning period; distribution.
- Withler, F.C. 1948 Lakes of the Skeena River drainage. VIII. Lakes of the Lac-da-dah Basin. Progr. Rept. Pac. Coast Stas., Fish. Res. Bd. Can., No. 74, 9-12.
- O. gorbuscha, pink; O. tschawytscha, spring; O. kisutch, coho; O. nerka, sockeye; Lakes of Lac-da-dah Basin, B.C.; food & feeding habits.
- Withler, F.C. 1950 Egg content of Babine sockeye. Progr. Rept. Pac. Coast Stas., Fish. Res. Bd. Can., No. 82, 16-17.
- O. nerka, sockeye; Babine fence, Skeena River system, B.C.; egg counts; counts of migrant adults.
- Withler, F.C. 1952a Estimation of the size of the sockeye smolt run, Babine Lake, 1951. Progr. Rept. Pac. Coast Stas., Fish. Res. Bd. Can., No. 91, 17-19.
- O. nerka, sockeye; Babine Lake, B.C.; marking & recapture data; counts of sockeye smolts.
- Withler, F.C. 1952b Sockeye reproduction in a tributary of Babine Lake. Progr. Rept. Pac. Coast Stas., Fish. Res. Bd. Can., No. 91, 16-17, 2 figs.
- O. nerka, sockeye; Six Mile Cr., B.C.; counts of migrant adults.
- Withler, F.C., McConnell, J.A., and McMahon, V.H. 1949 Lakes of the Skeena River Drainage. IX. Babine Lake, Progr. Rept. Pac. Coast Stas. Fisheries Res. Bd. Can., No. 78, 6-10.
- sockeye; migration route upstream from observation & tagging & recapture data; spawning behavior; spawning period; time eggs hatch; behavior of fry & fingerlings; food; time young spend in freshwater; time of seaward migration.
- Worth, S.G. 1895 Report on the propagation and distribution of food fishes. U.S. Comm. Fish & Fish. Part XIX. Rept. Comm'r for 1893, 78-138.
- quinnat; California; distribution; time species migrate upstream; spawning behavior; nature of spawning site.

Survey of Yukon waters. Ann. Rept.
Fish. Res. Bd. Can. for 1945, 44-46.

landlocked sockeye; spring, king;
Yukon waters; distance travelled
upstream.

Wynne-Edwards, V.C.

1947a

North West Canadian fisheries surveys
in 1944-1945, Chapt. 2, The Yukon
Territory, Bull. Fish. Res. Bd. Can.,
No. 72, 6-20.

king; dog; sockeye; coho; pink;
Alsek-Dezadeash R., Yukon R.; time
species migrates upstream; type of
stream chosen; distance travelled
upstream; spawning period; distribution.

Wynne-Edwards, V.C.

1947b

The Mackenzie River. In: North West
Canadian fisheries surveys in 1944-
1945. Bull. Fish. Res. Bd. Can.,
No. 72, 21-30.

3 species of Pacific salmon;
Mackenzie R., Canada; distribution.

Wynne-Edwards, V.C.

1952

Freshwater vertebrates of the Arctic
and Subarctic. Bull. Fish. Res. Bd.
Can., No. 94, 1-27, 5 figs.

O. gorbuscha, pink, humpback; O.
tschawytscha (sic), spring, king;
O. kisutch, coho; O. nerka, sockeye,
red; O. keta, dog; distribution;
distance travelled upstream; O. nerka
var., redfish of kokanee, landlocked,
Alsek Riv. system; size at time of
return (king, max. size.)

Yamamoto, Tadashi S.

1955

Ovulation in the salmon, herring and
lamprey. Jap. J. Ichthyology,
4(4-6): 182-192, 8 text-figs.,
6 plates. Japanese with English
abstract and headings.

O. keta; anatomy (ovary).

Young, M.W.

1948

Quinnat salmon; New Zealand, Marine
Department, Report Fish. for 1947,
11.

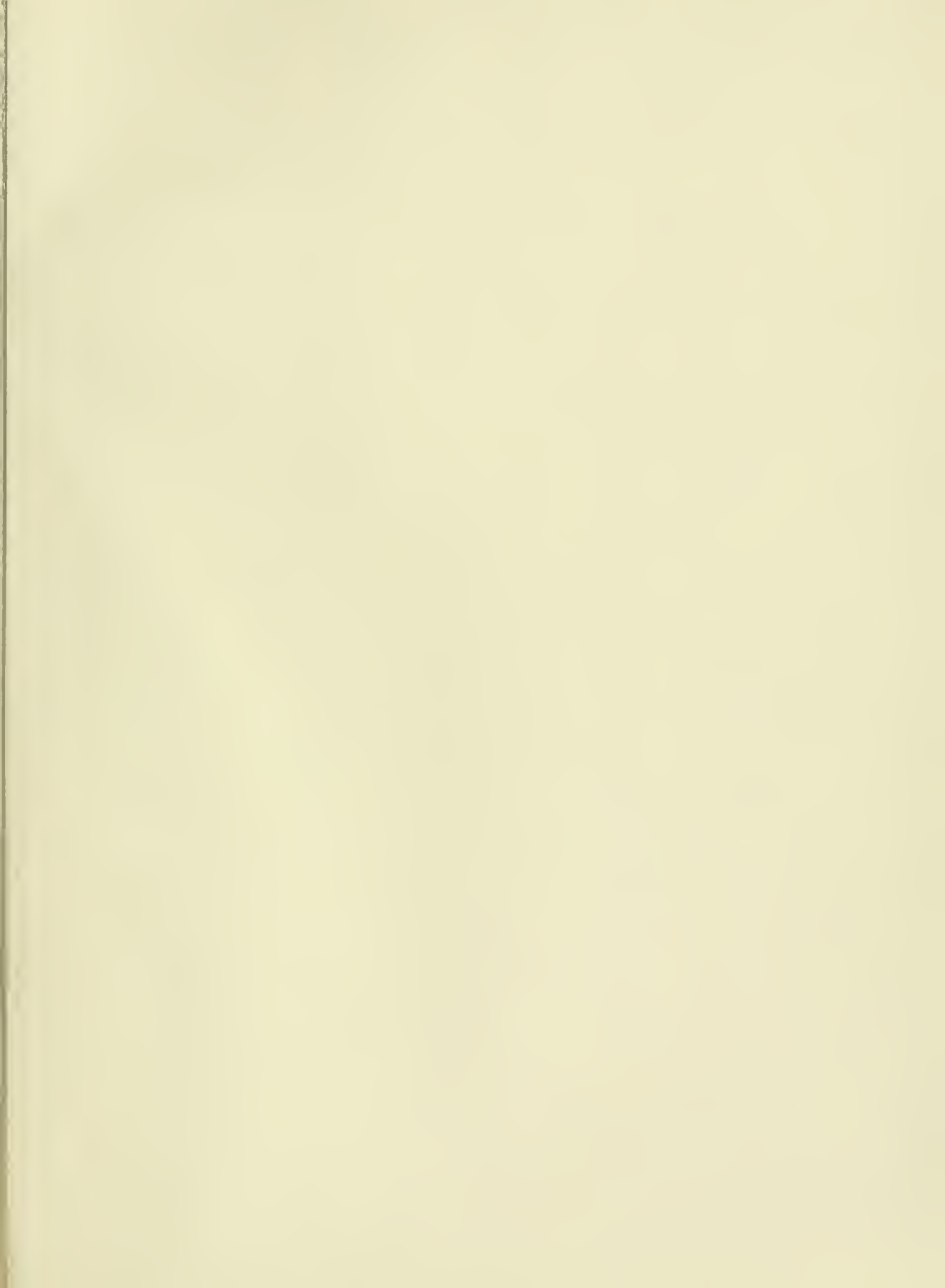
quinnat; intro. & acclim.: New
Zealand; weight at time of return;
distribution.

Young, M.W.

1949

Quinnat salmon; New Zealand, Marine
Dept., Rept. Fish. for 1948, 13.

quinnat; intro. & acclim.: New
Zealand; time species migrates
upstream.



MBL WHOI Library - Serials



5 WHSE 01144

